

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF THE CHAIRPERSON
Honolulu, Hawai'i

February 12, 2021

**Board of Land and
Natural Resources
State of Hawai'i
Honolulu, Hawai'i**

REGARDING: Independent evaluation of the University of Hawaii's implementation of the Mauna Kea Comprehensive Management Plan (CMP) (non-action item)

CONSULTANT: Ku'iwalu Consulting, P.O. Box 6280, Kāne'ohe, Hawai'i 96744

LEAD: Dawn N. S. Chang, Ku'iwalu Consulting

LANDOWNER: State of Hawai'i; leased to the University of Hawai'i under General Lease S-4191

LOCATION: Mauna Kea Science Reserve, Ka'ōhe Mauka, Hāmākua District, Hawai'i

TAX MAP KEYS: (3) 4-4-015:009 (Maunakea Science Reserve)
(3) 4-4-015:012 (Halepōhaku)

AREA OF PARCEL: approximately 11,288 acres (Mauna Kea Science Reserve)
19.3 acres (Halepōhaku)

SUBZONE: Resource

EXHIBIT 1: Ku'iwalu Report on the Independent Evaluation of the UH's implementation of the Mauna Kea CMP

ONLINE LINKS: The following documents are hosted on the Office of Conservation and Coastal Lands website at dlnr.hawaii.gov/occl/maunakea-management:

CMP: [Mauna Kea Comprehensive Management Plan](#) (2009)

Report: [Independent evaluation of the University of Hawaii's implementation of the Mauna Kea Comprehensive Management Plan](#)

Appendices A 1-5: [Community Engagement](#)

Appendix 6: [Comments related to community engagement](#)

Appendix A 7: [OMKM 2020 Annual report to the BLNR](#)

Appendix B: [Evaluation tables](#)

Appendix C: [References](#)

SUMMARY

On April 9, 2009, the Board of Land and Natural Resources approved the Maunakea Comprehensive Management Plan (CMP) for the Maunakea Science Reserve, including Halepōhaku and the Summit Access Road, Kaʻohe, Hāmakua District, Hawaiʻi. The CMP was developed by Kuʻiwalu Consulting, heading a project team composed of The Edith Kanakaʻole Foundation, Rechtman Consulting, McNeil Wilson, Sustainable Resources Group International, Inc., and Pacific Consulting Services.

In May 2020 DLNR contracted with Kuʻiwalu Consulting to conduct an independent evaluation of the University of Hawaiʻi (UH) compliance with the CMP. The evaluation is intended to provide the DLNR and the Board of Land and Natural Resources with relevant information, including community input, into whether Mauna Kea is being effectively managed.

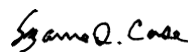
The evaluation is intended to parallel the mandatory five-year review of the CMP which is currently underway at UH.

Kuʻiwalu Consulting submitted their final report on December 2020. It is included as Exhibit 1. The report, along with the appendices and the 2009 CMP, are available on the Office of Conservation and Coastal Land's website at dlnr.hawaii.gov/occl/maunakea-management.

RECOMMENDATION

The Chair's office is presenting the attached report as a "non-action" item on the Board's Agenda. We have invited a representative from Kuʻiwalu Consulting to give a brief presentation to the Board.

Respectfully submitted,



Suzanne D. Case, Chairperson
Board of Land and Natural Resources

**INDEPENDENT EVALUATION OF THE
IMPLEMENTATION OF THE MAUNA KEA
COMPREHENSIVE MANAGEMENT PLAN**

**Prepared for
Department of Land and Natural Resources**

**By
Ku'iwalu**

December 2020

EXECUTIVE SUMMARY

It has been over ten (10) years since the approval of the Mauna Kea Comprehensive Management Plan (CMP),¹ and the emotions related to Mauna Kea have not diminished but, to the contrary, have intensified and polarized the community. We recognize that the current issues related to Mauna Kea, in particular the construction of the Thirty Meter Telescope (TMT), is a contentious issue. To be very clear, this Report is not for or about TMT. The purpose of this Report is to provide the Department of Land and Natural Resources (DLNR) an independent evaluation of the University of Hawai'i (UH), specifically the Office of Mauna Kea Management's (OMKM), implementation of the CMP management actions contained in Section 7 of the CMP and the public input on how effective UH is managing Mauna Kea. This Report is intended to be a resource to DLNR and the Board of Land and Natural Resources (BLNR) as it reviews UH's current and potential future management of the state conservation lands at Mauna Kea.

Gathering and incorporating public input into the evaluation process was a critical component of this Report. Due to the COVID-19 restrictions, we were challenged with providing an appropriate venue for the public and stakeholders to, (1) get current and accurate information about the management actions (MA) UH is required to implement under the CMP, and (2) provide a transparent and fair opportunity for public input into the UH's implementation of the CMP. We assembled a comprehensive range of tools to provide information and to solicit public input, from email updates, virtual public meetings, dedicated website, and a Facebook page, to small virtual talk story sessions. Throughout the evaluation process, we engaged almost 500 individuals and organizations. We recognize that we may not have heard from everyone, but we believe the range and interests of the participants is reflective of the general public and stakeholders in Mauna Kea.

The Report consists of three assessments. First, OMKM's self-assessment of their implementation of the CMP. Second, the public's assessment, based upon the comments we received. And third, the independent evaluation utilizing the logic model approach that took into consideration UH's self-assessment, the public input, the timeliness of OMKM's implementation of MAs, and whether UH's implementation of the 103 MAs achieved the desired outcomes as set forth in the CMP.

With respect to UH's self-assessment, the *OMKM 2020 Annual Report to the Board of Land and Natural Resources, Status of the Implementation of the Mauna Kea Comprehensive Management Plan* (OMKM 2020 Annual Report to BLNR) essentially concludes that "most management actions have either been

¹ *Mauna Kea Comprehensive Management Plan for the UH Management Areas*, April 2009 (hereinafter CMP), Executive Summary, page v.

implemented or are in progress.” For the most part, the UH Management Entities² believe they have made considerable progress in effectively implementing the CMP MAs and are, in fact, better managing and protecting the cultural and natural resources. However, there is a difference of opinion between UH-Hilo Management Entities (UH-Hilo Entities)³ and the larger UH System with respect to the public’s perception of how effective OMKM is in managing the state conservation lands at Mauna Kea. Accordingly, “in response to past criticisms”⁴ the UH Board of Regents (BOR) adopted Resolution 19-03 to take timely action to comply with the management plans, including cultural education and community outreach, decommissioning, and reorganization and restructuring the UH governance structure in their management of Mauna Kea.

The public’s assessment of how effectively UH has implemented the CMP has primarily varied depending on whether they are in favor or opposition of telescope development on Mauna Kea. Those who support existing and future telescope development on Mauna Kea believe that OMKM has adequately implemented the CMP MAs to preserve and protect the cultural and natural resources on Mauna Kea. For those who do not support continued telescope development on Mauna Kea beyond 2033, the expiration of the existing state lease, they believe that UH continues to mismanage Mauna Kea as concluded in the 1998 State Auditor’s Report. In particular, those in opposition believe that UH continues to advocate telescope development over the protection and preservation of the resources.

Finally, the independent evaluation found that OMKM has made progress in implementing most of the CMP MAs, and in many regards OMKM is effectively managing the activities and uses on Mauna Kea to better protect the natural and cultural resources. We heard many comments that the cultural and natural resources on the state conservation lands on Mauna Kea are some of the best managed and protected lands in the entire State. The area is clear of trash, the invasive species are being removed not only by OMKM but volunteer groups, and the OMKM Rangers to ensure public safety on Mauna Kea.

² “UH Management Entities” include the UH Board of Regents (BOR), UH President, Institute for Astronomy (IfA), Executive Director of Maunakea Stewardship, UH Hilo Chancellor, Mauna Kea Management Board (MKMB), OMKM, Kahu Ku Mauna (KKM) and OMKM Rangers.

³ UH-Hilo Management Entities (UH-Hilo Entities) include UH-Hilo Chancellor, MKMB, OMKM, KKM, and OMKM Rangers.

⁴ UH BOR Resolution 19-03, Adopted November 6, 2019, Amended, July 1, 2020 (BOR Resolution 19-03).

However, the independent evaluation also found that OMKM has not effectively implemented the CMP in three major areas. First, the adoption of the administrative rules was untimely. In 2009, the same year that the CMP was approved, UH obtained legislative authorization to adopt administrative rules to manage the activities on Mauna Kea to ensure the protection of the resources. However, the rules did not become effective until 2020. UH's failure to timely adopt administrative rules has limited their ability to manage public access and regulate commercial activities, essentially hampering their ability to protect the resources and public health and safety on Mauna Kea.

Second, members of the Native Hawaiian community, both those who oppose and support UH's management of Mauna Kea, were not consulted on matters related to cultural and resources issues. The CMP specifically identifies the Native Hawaiian stakeholders to include families with cultural and lineal connections to Mauna Kea, Kūpuna, cultural practitioners, the Office of Hawaiian Affairs and other Native Hawaiian groups. Representatives from these stakeholder groups have consistently commented that they were not consulted by OMKM on cultural issues, including removal of family shrines, stacking of Pōhaku, and identification of cultural sites.

Third, OMKM did not effectively engage with the community, in particular, members of the Native Hawaiian community, on education and outreach efforts, including decision-making process related to the management of Mauna Kea. Many Native Hawaiians on Hawaii Island feel disengaged and disrespected by OMKM. In particular, there is an absence of genuine consultation with the Native Hawaiian community that has resulted in greater mistrust of UH. Even with the Native Hawaiian constituency who strongly support OMKM and telescope development, OMKM has not taken the opportunity to involve them in their community outreach efforts.

Unfortunately, these inadequacies by OMKM have overshadowed their progress in the otherwise effective implementation of many of the CMP MAs.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	i
TABLE OF CONTENTS	iv
LIST OF TABLES.....	vi
LIST OF FIGURES	vi
ACRONYMS.....	vii
INTRODUCTION	1
DLNR’s INDEPENDENT EVALUATION OF UH’S IMPLEMENTATION OF THE CMP ..	2
Purpose of the Independent Evaluation Report.....	2
Independent Evaluation Process	2
Fact Gathering	2
Public Engagement Process.....	3
Development and Implementation of the Evaluation Model	3
Final Report.....	3
MANAGEMENT OF MAUNA KEA	4
Management of Mauna Kea Prior to 1968	4
Management of Mauna Kea under General Lease No. S-4191	4
The State Audit of the Management of Mauna Kea.....	7
Development and Management of Mauna Kea Under the CMP	8
PUBLIC ENGAGEMENT PROCESS AND SUMMARY	11
Stakeholders and General Public	11
Consultation Process and Methods	12
Email Updates.....	12
Individual and Stakeholder Meetings	13
Virtual Public Meetings	13
Website	14
Facebook	14
Comments Submitted to Ku’iwalu Related to UH’s implementation of the CMP	14
Summary of the Comments Relevant to UH’s Implementation of the CMP.....	15
The cultural value of Mauna Kea continues to be “unrecognized” by UH as are the rights of Native Hawaiian cultural and religious practitioners	15
There is a lack of genuine community engagement and cultural education by UH as required by the CMP	16
UH has generally done a good job in managing the cultural and natural resources, but there is no independent review or accountability on the integrity of the studies or reports, and the completion of many of the CMP actions are overdue.....	17

There is an inherent conflict of interest by having UH as the lessee of the state conservation lands and the applicant for new telescope development.....	17
The current UH governance structure is not effective in managing Mauna Kea.	18
Issues and Comments beyond the Scope of the CMP	19
UH has not kept its “promises” to remove telescopes from Mauna Kea before proposing new telescope development.....	19
UH should not be managing the cultural and natural resources and should only manage the astronomy precinct.....	19
There is presumption that BLNR is going to renew the state lease to UH for the state conservation lands at Mauna Kea	20
Other issues raised that were beyond the scope of the CMP and not fully discussed.....	20
EVALUATION PROCESS AND OUTCOME	21
CMP Reporting and Evaluation Requirements.....	21
The Logic Model method was used to conduct the Independent Evaluation.....	22
Overall Summary of OMKM’s Implementation of the CMP	32
Areas where OMKM has not effectively implemented the CMP to achieve the Desired Outcomes	32
Outreach and communications	33
Cultural Education	33
Failure to timely implement certain MAs	33
OMKM’s updates do not include metrics to evaluate progress towards achieving the desired outcomes.....	33
CONCLUSION.....	34

LIST OF TABLES

Table 1: Summary Table on the Independent Evaluation on Achieving the Desired CMP Outcomes..... 25

LIST OF FIGURES

Figure 1: Brief History Timeline of Management of Mauna Kea 6
Figure 2: The Links Between the OMKM Mission and MCP Management Actions 32

ACRONYMS

ACT	Activities and Uses (Comprehensive Management Plan Management Action)
AR	Astronomical Resources (CMP MA)
BLNR	Board of Land and Natural Resources
BOR	Board of Regents
C	Construction Guidelines (CMP MA)
CDUA	Conservation District Use Application
CDUP	Conservation District Use Permit
CIA	Cultural Impact Assessment
CMP	Mauna Kea Comprehensive Management Plan
CR	Cultural Resources (CMP MA)
DHHL	Department of Hawaiian Home Lands, State of Hawai'i
DLNR	Department of Land and Natural Resources, State of Hawai'i
DOCARE	Division of Conservation and Resource Enforcement, DLNR
DOFAW	Division of Forestry and Wildlife, DLNR
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Education and Outreach (CMP MA)
FLU	Future Land Use (CMP MA)
HAR	Hawai'i Administrative Rules
HRS	Hawai'i Revised Statutes
IfA	Institute for Astronomy, UH
IM	Infrastructure and Maintenance (CMP MA)
KKM	Kahu Ku Mauna
MA	Management Action
MCP	Management Component Plan
MEU	Monitoring, Evaluation and Updates (CMP MA)
MKMB	Mauna Kea Management Board
MKSS	Mauna Kea Observatories Support Services
NAR	Natural Area Reserve, DLNR
NHO	Native Hawaiian Organization
NR	Natural Resources (CMP MA)
NRHP	National Register of Historic Places
NSF	National Science Foundation
OCCL	Office of Conservation and Coastal Lands, DLNR
OEQC	Office of Environmental Quality Control
OHA	Office of Hawaiian Affairs
OI	Operations and Implementation (CMP MA)
OMKM	Office of Mauna Kea Management, UH
OMMP	Operations, Monitoring, and Maintenance Plan
P	Permitting and Enforcement (CMP MA)
SHPD	State Historic Preservation Division, DLNR
SR	Site Recycling, Decommissioning, Demolition and Restoration (CMP MA)
TCP	Traditional Cultural Property
TMT	Thirty Meter Telescope
UH	University of Hawai'i
UH-Hilo	University of Hawai'i at Hilo

INTRODUCTION

In 1968, BLNR issued a 65-year General Lease No. S-4191 to UH for approximately 11,288 acres of state conservation lands. Of the 11,288 acres, approximately 525 acres is designated as the Astronomy Precinct and the remaining 10,763 acres is designated as Natural and Cultural Preservation Area.⁵ The state lease will expire in 2033. UH has indicated that it intends to seek a new lease with BLNR for the 11,288 acres currently under General Lease No. S-4191 and 19 acres known at Hale Pōhaku under General Lease No. S-5529.⁶

Over ten years ago in 2009, Ku'iwalu Consulting and its Project Team,⁷ developed the CMP for the UH Management Areas.⁸ The CMP MA related to Monitoring, Evaluation, and Updates MEU-1,⁹ requires UH, through OMKM, to produce annual progress reports describing in detail the management goals, objectives, and actions for the year and what progress was made towards meeting them. In August 2020 we received from UH, the OMKM 2020 Annual Report to BLNR. In addition to annual progress reports, MEU-1 requires OMKM to prepare Five-Year Outcome Analysis Reports that describes the status of the various management programs, progress towards meeting CMP goals, and other relevant information. OMKM is in the process of completing its first five-year review.

Since OMKM will be submitting its first Five-Year Progress Report and UH has announced its intent to file an EIS for a new state lease, DLNR sought an independent evaluation of UH's current management of Mauna Kea under the CMP. More specifically, DLNR sought an independent evaluation of not only UH's implementation of the CMP but also UH's adherence to the CMP and the effectiveness of its management strategies and governance structures in preserving and protecting the valuable cultural and natural resources on the state conservation lands.

⁵ The Astronomy Precinct and Natural and Cultural Preservation Area were designated by UH in its 2000 Mauna Kea Science Reserve Master Plan (Master Plan). The Master Plan called for 525 acres of the summit area leased land to be designated an Astronomy Precinct where the astronomy development was to be consolidated to maintain a close grouping of astronomy facilities, roads, and support infrastructure. CMP page 3-1. The Master Plan was approved by the UH BOR but not adopted or approved by BLNR. CMP page 3-8.

⁶ UH's notice of intent to file an environmental impact statement (EIS) for the state leased lands was published in the Office of Environmental Quality Control (OEQC) February 23, 2018 Environmental Bulletin.

⁷ The Project Team that developed the CMP consisted of The Edith Kanaka'ole Foundation, Rechtman Consulting, McNeil Wilson, Sustainable Resources Group International, Inc., and Pacific Consulting Services.

⁸ The UH Management Areas is described in Section 3.1.1 of the CMP as beginning "at approximately 9,200 ft. (2,804 m) on Mauna Kea and extends to the summit, at 13,796 ft. (4,205 m), encompassing three distinct areas: the Mauna Kea Science Reserve (Science Reserve), the mid-level facilities at Hale Pōhaku, and the Summit Access Road (see Figure 3-1). These areas are collectively referred to as the 'UH Management Areas.' The UH Management Areas on Mauna Kea are classified in the resource subzone of the state conservation district lands (see Section 3.4.2)." See CMP at page 3-16.

⁹ MEU-1 refers to Monitoring, Evaluation and Updates (MEU). See CMP at page 7-64.

DLNR'S INDEPENDENT EVALUATION OF UH'S IMPLEMENTATION OF THE CMP

PURPOSE OF THE INDEPENDENT EVALUATION REPORT

The purpose of *this* Independent Evaluation Report (Report) is to (1) evaluate the effectiveness of UH, specifically OMKM's,¹⁰ implementation of the specific Management Component Plans (MCP) found in Section 7 of the CMP, and (2) to evaluate the efficiency of the governance structure in managing the cultural and natural resources within state conservation lands under lease to UH. Ultimately, this Report will provide DLNR and BLNR the relevant information, including extensive public input, as they consider the management of the state conservation lands during the current lease term and beyond, in any future lease.

INDEPENDENT EVALUATION PROCESS

Fact Gathering

The independent evaluation process focused on OMKM's implementation of the CMP MAs within the MCPs and UH's governance structure in managing Mauna Kea and the Mauna Kea Science Reserve. The Project Team¹¹ gathered relevant information from files of DLNR, UH, various litigation involving Mauna Kea, 1998 state auditor report and follow-up audit reports, relevant print and social media, and other related materials. We also provided UH the opportunity to submit all relevant documents on their implementation of the CMP. In response to the request, UH emailed a comprehensive list of documents and links supporting their implementation of the CMP.¹² All information that was provided to Ku'iwalu was uploaded to the CMP evaluation website, www.evaluateCMP.com.

We also reviewed materials related to the implementation of the CMP and Mauna Kea in general, from other stakeholders, including but not limited to the Sierra Club of Hawai'i, Protect Mauna Kea, KAHEA, IfA, 'Imiloa Astronomy Center, Hawai'i Unity & Liberation Institute, Hawai'i Forest & Trails, EnVision Maunakea, Office of Hawaiian Affairs (OHA), Imua TMT, and the TMT International Observatory.

¹⁰ Section 7.4.1 of the CMP states that the OMKM will be responsible for implementing the CMP and ensuring adherence to its provisions. However, for purposes of this Report, since the state lease is issued to UH, the UH will be generally referenced as responsible for the implementation of the CMP unless the action is specifically undertaken by OMKM, then OMKM will be referenced.

¹¹ The Project Team for this Report includes SMS Research, People Strategies Hawai'i LLC, and Ku'iwalu.

¹² Ku'iwalu sent a letter dated May 19, 2020 to Dr. Gregory Chun, UH's Executive Director of Maunakea Stewardship, providing them an "opportunity to furnish Ku'iwalu with all relevant information, which could include reports, studies, annual reports, meeting notes, community comments, administrative rule-making, response to auditor's reports, etc. that document UH's performance, operations, and the management of Mauna Kea consistent with the CMP." Dr. Chun was identified as UH's Point of Contact for the independent evaluation.

Public Engagement Process

As part of the evaluation process, Ku'iwalu proposed to develop and implement a culturally sensitive and robust public engagement process, similar to the community outreach process utilized in the preparation of the CMP that was approved in 2009. At the onset, Ku'iwalu was challenged by the constraints and uncertainties of the COVID-19 restrictions on social distancing and travel to Hawai'i Island. Thus, Ku'iwalu utilized a variety of non-traditional approaches to engage the general public and stakeholders to solicit their input on UH's implementation of the CMP and stewardship of Mauna Kea. The following methods were used to solicit public input: email updates, stakeholder meetings, virtual public meetings, website, Facebook, and direct contact with Ku'iwalu.

Development and Implementation of the Evaluation Model

SMS Research, based upon their experience and expertise, developed and conducted the independent evaluation. To start, they did a thorough review of the CMP and examined all the documents provided during the fact gathering phase. They relied upon the documents provided by UH, including OMKM's 2020 Annual Report to BLNR,¹³ MKMB meeting minutes, reports, studies, and other relevant documents. They also reviewed and considered all documents related to the CMP provided by other organizations, comments from stakeholder and virtual public meetings, website comments, and comments that were submitted directly to Ku'iwalu through phone calls and emails.

SMS Research then developed an evaluation model based upon the Logic Model Approach. This approach focuses on which MAs were completed by OMKM and the impact of those activities or actions on achieving the desired outcomes as set forth in each of the MCPs. The time period examined was UH's implementation of the CMP from 2010 to present.

Final Report

The Report includes three sets of evaluations. First, the Report includes UH's self-assessment based upon the OMKM 2020 Annual Report to BLNR. Second, the Report includes the public's assessment of how effectively UH implemented the CMP MAs, based upon comments from stakeholder meetings, the three virtual public meetings, comments submitted on the website or by email directly to Ku'iwalu. Third, the Report includes the independent evaluation based upon the logic model that took into consideration UH's self-assessment, public input, whether UH's action achieved the desired outcomes, and the timeliness of completion by UH to meet the desired outcomes.

The Report will be submitted to DLNR by December 31, 2020 and uploaded to the CMP website for public consumption.

¹³ Appendix A7 is a copy of the OMKM 2020 Annual Report to BLNR.

MANAGEMENT OF MAUNA KEA

Before delving into the public comment and evaluation model, we believe it is important to have an understanding of the historical background on management of Mauna Kea to provide context for the CMP MAs, MCP desired outcomes, and goals which set the framework for the Logic Model Approach.¹⁴ A brief history timeline of the management of Mauna Kea is shown in Figure 1.

MANAGEMENT OF MAUNA KEA PRIOR TO 1968

In the early 1960's, the federal government, through the National Aeronautics and Space Administration, was increasing funds to test, develop, design, and construct telescope facilities around the country. Due to accessibility, initial testing was conducted at Haleakalā, on Maui Island. In 1963, Governor John Burns provided funds to build an access trail to the summit of Mauna Kea for observatory testing. In 1964, after testing, UH concluded that Mauna Kea was an exceptional site for an astronomical observatory. In that same year, the State Land Use Commission placed the lands on Mauna Kea within the state's conservation district under the management jurisdiction of BLNR.¹⁵

MANAGEMENT OF MAUNA KEA UNDER GENERAL LEASE NO. S-4191

In 1967, UH established the IfA to plan for telescope development on Mauna Kea. The following year, UH applied to BLNR for a 65-year lease of the state conservation lands at Mauna Kea to establish the Mauna Kea Science Reserve. Management of the state leased lands was primarily by IfA to further their mission to conduct and promote world-class astronomical research. From 1968 to 2002, thirteen telescopes were built on the summit of Mauna Kea.

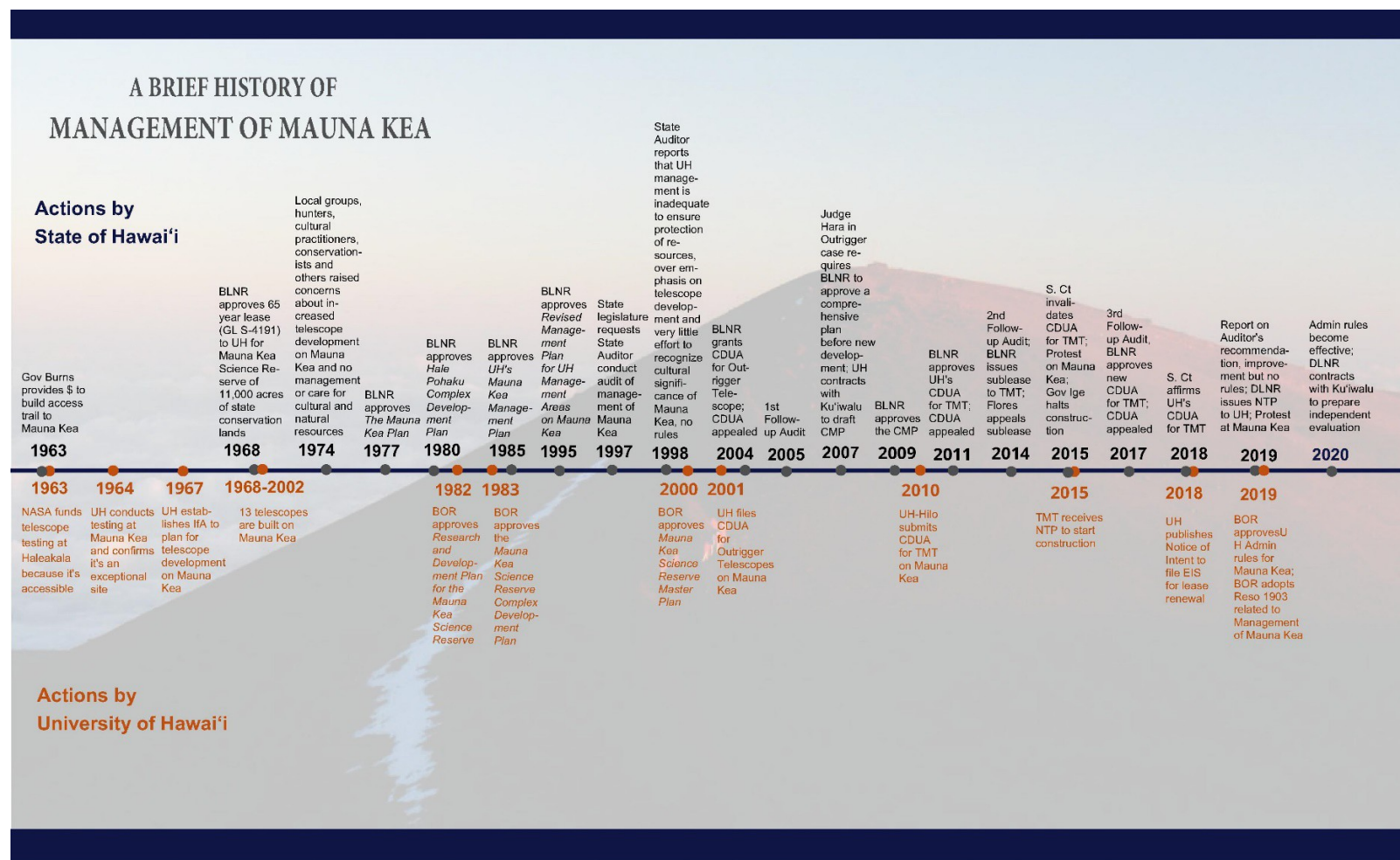
¹⁴ We also recognize that this Report will be broadly reviewed, thus this background information on management of Mauna Kea will provide the relevant context when reviewing the Report.

¹⁵ See CMP Section 3.2, at pages 3-5 for complete History of Planning and Management of Mauna Kea. Additionally, Hawaii Revised Statutes (HRS), Chapter 205-2 describes the state four land use districts; urban, rural, agricultural, and conservation. Conservation districts include areas necessary for protection and preservation of resources.

During this same period of time, local groups, including hunters, cultural practitioners, conservationists, and others raised concerns about the increased development of telescopes on the summit of Mauna Kea with no management or care for the cultural and natural resources.¹⁶ From 1974 to 2000, DLNR and UH attempted to respond to the community concerns to improve management control over not only telescope development, but the proliferation of unregulated commercial and recreational use of Mauna Kea. BLNR adopted the 1977 DLNR Mauna Kea Plan, 1980 Hale Pōhaku Complex Development Plan, 1985 Mauna Kea Management Plan, and 1995 Revised Management Plan for the UH Management Areas on Mauna Kea. Similarly, in 1982 the UH BOR approved the Research and Development Plan for Mauna Kea Science Reserve, in 1983 the Mauna Kea Science Reserve Complex Development Plan, and in 2000 the Mauna Kea Science Reserve Master Plan.

¹⁶ State Auditor's Report *"Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve,"* Report No. 98-6, February 1998, page 45.

Figure 1: Brief History Timeline of Management of Mauna Kea



THE STATE AUDIT OF THE MANAGEMENT OF MAUNA KEA

In response to the “growing concerns” over the protection of Mauna Kea’s cultural and natural resources, the 1997 Hawai’i State Legislature, through Senate Concurrent Resolution No. 109, requested the State Auditor to conduct an audit of the management of Mauna Kea and the Mauna Kea Science Reserve. The audit was completed in February 1998, and specifically noted that the “conditions of the lease, the plan(s) developed, and the Conservation District Use Application (CDUA) process were all designed to allow the university’s use of the lands without causing excessive damage to the fragile environment. However, the university’s focus on pursuing its own interests has led to conditions and practices that have countered or weakened these processes.”¹⁷

The audit indicated that UH primarily focused on development of the summit of Mauna Kea for some of the most powerful astronomical instruments in the world. While these telescopes enhanced the university’s prestige and status around the astronomical community, “both the university and the department¹⁸ failed to develop and implement adequate controls to balance the environmental concerns with astronomy development.”¹⁹

The audit concluded that,

*Over thirty years have passed since construction of the first telescope on Mauna Kea. During this period, little was done to protect its natural resources. The university, as the leaseholder, should have provided sufficient protection to the natural resources and controlled public access and use. These requirements have not been adequately met. The Department of Land and Natural Resources, in its role as landlord, should have overseen the university’s activities and enforced permit conditions and regulations in protecting the State’s interests. Neither state agency has been proactive in maintaining the conservation district.*²⁰

The audit made several recommendations for UH and DLNR to improve the management of Mauna Kea and the Mauna Kea Science Reserve. Since 1998, the state auditor has conducted four follow-up audits to assess UH and DLNR’s implementation of their specific recommendations to improve the management of Mauna Kea and the Mauna Kea Science Reserve. The follow-up audits were done

¹⁷ Id, page 15.

¹⁸ While the 1998 Audit addressed both UH and DLNR’s management of Mauna Kea and the Mauna Kea Science Reserve, for purposes of this Report, we will be focusing only on UH’s management of Mauna Kea under the CMP.

¹⁹ Id, page 15.

²⁰ Id, pages 34-35.

in 2005,²¹ 2014,²² 2017,²³ and 2019.²⁴ In general, the follow-up audits found that UH had made improvements in managing Mauna Kea, including the adoption of the CMP. However, consistent in all the audits, was UH's failure to adopt administrative rules governing public and commercial activities to ensure effective management and enforcement for the protection and preservation of the natural and cultural resources.²⁵

DEVELOPMENT AND MANAGEMENT OF MAUNA KEA UNDER THE CMP

The CMP was developed to address many of the past concerns by providing a resource management framework to preserve and protect cultural and natural resources by managing existing and future activities and uses on Mauna Kea. Some of the past concerns were noted in the 1998 Auditor's Report, including over emphasis on telescope development and lack of acknowledgement of the cultural significance of Mauna Kea. The CMP was also developed to comply with the legislative intent of conservation lands,²⁶ and judicial decisions, including Judge Hara's decision²⁷ and the *Ka Pa'akai*²⁸ analytical framework related to the protection of Native Hawaiian rights.

²¹ *Follow-Up Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve*, Report No. 05-13, December 2005.

²² *Follow-Up Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve*, Report No. 14-07, August 2014.

²³ *Follow-Up on Recommendations from Report No. 14-07, Follow-Up Audit of the Management of Mauna Kea and the Mauna Kea Science Reserve*, Report No. 17-06, July 2017.

²⁴ *Report on the Implementation of State Auditor's Recommendations 2014-2017*, Report No. 19-15, November 2019.

²⁵ UH Administrative Rules, Chapter 20-26 entitled Public and Commercial Activities on Mauna Kea Lands was adopted by the BOR on November 6, 2019, signed by the Governor, and became effective on January 23, 2020.

²⁶ HRS, §183C-1, states that "The legislature finds that lands within the state land use conservation district contain important natural resources essential to the preservation of the State's fragile natural ecosystems and the sustainability of the State's water supply. It is therefore, the intent of the legislature to conserve, protect, and preserve the important natural resources of the State through appropriate management and use to promote their long-term sustainability and the public health, safety and welfare."

²⁷ *Mauna Kea Anaina Hou, et al. v. Board of Land and Natural Resources*, Civ. No. 04-1-397, Decision and Order dated January 19, 2007 (Judge Hara's decision). Pursuant to Judge Hara's decision, BLNR shall approve a comprehensive management plan that considers multiple uses as a precondition for any future development on Mauna Kea.

²⁸ *Ka Pa'akai O Ka 'Aina v. Land Use Commission*, 94 Haw. 31, 7 P.3d 1068 (2000) (*Ka Pa'akai*). The Hawai'i Supreme Court in its decision in *Ka Pa'akai* provides government agencies an analytical framework to ensure the protection and preservation of valued cultural, historical, and natural resources. Section 2.3.3 of the CMP specifically describes how the CMP applied the analytical framework to ensure that the constitutionally guaranteed traditional and customary Native Hawaiian rights and cultural, historical, and natural resources are preserved and protected.

In addition to the legal requirements, the CMP was developed based upon an extensive community engagement process. The basis for the consultation process was an acknowledgment by UH that past planning and management efforts had not fully engaged the community or genuinely considered their concerns. The CMP aptly summarizes this sentiment:

During the recent Outrigger Telescope permitting process, many in the Hawaiian community experienced frustration as they attempted to express their perspectives and suffered psychological and spiritual hurt as their values and traditions were not given the attention and respect they deserved. As a result, they lost trust in the University as a responsible steward of the UH Management Areas and criticized the University for circumventing its own management policies. Subsequently, many individuals dissociated themselves from the process or resorted to other venues to express their views and advocate their position.²⁹

The CMP was prepared in a methodical manner, primarily based upon the *Ka Pa‘akai* analytical framework, to form the foundation for the 103 MAs. These MAs are designed to preserve and protect the cultural and natural resources by managing the existing and futures uses and activities on Mauna Kea.

- Section 1 – Cultural Orientation. Introduces the reader or user of the CMP to the cultural significance of Mauna Kea from a historical and contemporary use perspective;³⁰
- Section 2 – Introduction. Describes the CMP as an integrated planning tool for resource management, drawing upon the Hawaiian approach to managing cultural and natural resources as well as contemporary science-based management approaches. This section also describes the CMP goals, objectives, and desired outcomes upon which we evaluate whether UH's implementation of the CMP is in furtherance of these goals;
- Section 3 – Management Environment. Provides an overview of the physical UH Management Areas, history of the previous planning and management plans, and describes the management responsibilities over Mauna Kea;
- Section 4 – Community Engagement Process. This process recognized that many in the public, especially the Native Hawaiian community on Hawai‘i Island felt anger, hurt and mistrust towards UH for not involving them in management decisions related to Mauna Kea. This section describes the culturally sensitive community engagement process based upon cultural values and the non-traditional methods of engagement to ensure meaningful participation by the public;

²⁹ CMP, page 4-1.

³⁰ We acknowledge that not all Native Hawaiians may share the view that Mauna Kea is culturally significant. During the public engagement process for this Report, there is a strong Native Hawaiian constituency that assert Mauna Kea is not culturally sacred and in fact, the CMP's assertion that Mauna Kea is culturally significant is offensive to this Native Hawaiian constituency. However, during the community engagement process for the development of the CMP, there was overwhelming sentiment by many of the Native Hawaiian stakeholders that participated in the process, that Mauna Kea is culturally significant.

- Section 5 – Cultural and Natural Resources. The CMP relied upon previous documentation to identify the valued cultural resources, ³¹ historic and archaeological resources, and natural resources. Section 5 is the 1st step in the *Ka Pa‘akai* analysis to identify the valued cultural, natural, and historic resources within the state conservation lands;
- Section 6 – Human Environment. This section described all the existing and future activities and uses on Mauna Kea and the threats to the cultural, natural, and historic resources. Section 6 is the 2nd step in the *Ka Pa‘akai* analysis to determine the impacts that the proposed management framework would have on the valued resources;
- Section 7 – Management Component Plans. Section 7 is the 3rd step in the *Ka Pa‘akai* analysis that identifies the feasible actions, MAs, or mitigation measures to reasonably protect the valued cultural, natural, and historic resources. This is the heart of the CMP that sets forth desired outcomes for each of the MCPs, specific MAs that UH, and specifically OMKM, is required to implement to ensure the protection and preservation of the cultural and natural resources.

The CMP was approved by BLNR on April 7, 2009 and the UH BOR on April 16, 2009. As a condition of BLNR approval, four sub-plans were required to be developed within one year of approval of the CMP. The four sub-plans include: (1) *Natural Resource Management Plan for the UH Management Areas on Mauna Kea* (September 2009), (2) *Cultural Resources Management Plan for the UH Management Areas on Mauna Kea* (October 2009), (3) *Mauna Kea Public Access Plan* (January 2010), and (4) *Decommissioning Plan for the Mauna Kea Observatories* (January 2010).

³¹ In particular, the CMP relied upon the extensive ethnographic interviews and cultural reports prepared by Kepa and Onaona Maly. Maly, K and O. Maly (2005). *Mauna Kea, ka piko Kaulana o ka aina: Mauna Kea, the famous summit of the land*. Hilo, HI, Kumu Pono Associates LLC: 650 p.; Maly, K. and O. Maly (2006). *Appendix A: Mauna Kea-Ka Piko Kaulana o Ka ‘Aina*.

PUBLIC ENGAGEMENT PROCESS AND SUMMARY

The public engagement process and summary is a critical component of not only the independent evaluation but the path forward for stewardship of Mauna Kea. When contracting with Ku'iwalu, DLNR emphasized the importance of an extensive public engagement process to fully inform them and BLNR of the public's sentiments about current and future stewardship of Mauna Kea. Public sentiments include stakeholders to Mauna Kea and the general public. Thus, in addition to the technical evaluation of UH's implementation of the CMP, this Report includes the public's assessment of UH's management or stewardship and governance of Mauna Kea.

Almost everyone has an opinion or comment on Mauna Kea. However, not all comments are necessarily related to the implementation of the CMP.³² For the integrity of the independent evaluation, we wanted to ensure that the public assessment and UH's assessment were comparing "apples with apples," in other words, comparing the same CMP MCPs. Thus, while we read all of the comments, for the purposes of the independent evaluation, we considered those comments that were specifically related to UH's implementation of CMP MAs. However, this does not diminish or disregard the time people took to submit their comments or the strong sentiments that were expressed in their comments. For those who submitted comments within the comment deadline, we have listed their names on Appendix A1.³³ We have greatly appreciated all of the comments that were submitted.

STAKEHOLDERS AND GENERAL PUBLIC

Similar to the CMP community engagement process, there are families, organizations, and agencies who have an active (and in some cases, cultural or lineal) relationship to Mauna Kea. There are certain stakeholders whose views and perspectives were given careful consideration because of their cultural, legal, or regulatory affiliation with Mauna Kea. They include the following:

- UH Management Entities
- Families who have cultural or lineal connections to Mauna Kea
- Hawaiian Cultural and Religious Practitioners
- Astronomical Community
- Aha Moku Advisory Committee

³² In fact, many comments we received were either for or against the construction of TMT on Mauna Kea. While this Report is not for or about TMT, Hawaiian sovereignty, ceded lands, compensation, or renewal of the state lease, many of the comments we received were about these topics. This Report briefly describes some of these comments in the Section titled "Issues and Concerns beyond the Scope of this Report."

³³ Appendix A1 is a comprehensive list of all the individuals and groups we engaged with during the CMP evaluation process. This list includes those who may have received email updates, participated in stakeholder meetings, attended virtual public meetings, left a comment on the website, or emailed a comment directly to Ku'iwalu.

- OHA
- Environmental Groups
- Hawaiian Educational and Business Organizations
- Commercial and Recreational users
- Elected Officials
- Government Agencies

In addition to stakeholders, the viewpoints of the general public are important and were given due consideration in the evaluation process.

CONSULTATION PROCESS AND METHODS

As previously noted, Ku'iwalu utilized a variety of non-traditional approaches to engage the general public and stakeholders to solicit their input on UH's implementation of the CMP and stewardship of Mauna Kea. We engaged with nearly 500 individuals or organizations during the evaluation process.³⁴ The following methods were used to solicit public input:

Email Updates

- 1st email – May 15, 2020. Ku'iwalu initially emailed letters to those individuals or groups who were consulted during the preparation of the CMP in 2009. In addition, emails were sent to a list of known stakeholders involved in Mauna Kea at the time. The first email included a letter introducing Ku'iwalu, a copy of DLNR's May 15, 2020 Press Release announcing their review of the Mauna Kea CMP, the CMP Report and CMP Appendices from April 2009. Appendix A2 is a copy of the email, and attachments of Ku'iwalu's Introduction Letter, and DLNR's Press Release;³⁵
- 2nd email – July 23, 2020. The 2nd email update included a letter that announced the launch of the Project Website www.evaluateTheCMP.com and Facebook page (Share Your Mana'o on the Mauna Kea CMP). The letter indicated that the website provides easy access to the CMP, reference documents provided by UH, as well as other resources. It also explained ways to provide comments and give input during the evaluation process. As the process proceeded, the email updates were expanded to include those who participated in stakeholder meetings, those who registered for the virtual public meetings, or those who may have submitted comments. Appendix A2.1 is a copy of the email and the July 23, 2020 letter;

³⁴ See Appendix A1.

³⁵ The April 2009 CMP [Report](#) and CMP [Appendices](#) can be found on DLNR's website.

- 3rd email – August 26, 2020. The 3rd email update announced the three virtual public meetings as well as information of the many different ways to provide comments before the October 16, 2020 comment deadline.³⁶ Appendix A2.2 is a copy of the email;
- 4th email – September 3, 2020. The 4th email update announced the three virtual public meetings and how to register for each meeting. It also provided a link to the website to participate in a number of informal community polls. Appendix A2.3 is a copy of the email sent to the expanded list of stakeholders;
- 5th email – September 24, 2020. The 5th email was a reminder to register in advance for the virtual public meetings. Appendix A4 is a copy of the email reminder.
- 6th email – December 2020. The 6th email will be to announce that the Report has been submitted to DLNR and posted on the website for thirty (30) days, thereafter the website will be removed since the Report has been submitted. DLNR will then provide a link to the Report on its Mauna Kea website. The email will be sent to the comprehensive list referenced in Appendix A1.

Individual and Stakeholder Meetings

Ku'iwalu convened over forty (40) virtual stakeholder meetings and telephone conferences during the course of the evaluation process. The small talk story meetings permitted discussions that could be candid, confidential, and respectful. The meetings ranged from 1-2 hours and focused on getting specific comments on UH's implementation of the CMP MAs and their stewardship of Mauna Kea. These stakeholder meetings ranged from the various UH Management Entities who have a role in the management of Mauna Kea, relevant DLNR Divisions, cultural and religious practitioners, individuals and families who have cultural or lineal connections to Mauna Kea, NHOs, Observatories, Imua TMT, KAHEA, Kia'i Alaka'i and elected officials. Appendix A3 is a list of stakeholders we met with. This list of stakeholders was added to the list for email updates.

Virtual Public Meetings

In an effort to reach out to the broader public, we held three virtual public meetings. The meetings were scheduled on different days of the week and at different times to make them more accessible to the public. Those wanting to attend the virtual meetings were required to register in advance in order to receive a link to attend the meetings. Appendix A4 is a list of those who registered for each of the three virtual public meetings. In general, more people registered than actually joined the meeting.

³⁶ The deadline for comments was extended to November 5, 2020 as posted on the website.

During each of the two-hour virtual public meetings, we provided a brief presentation on the CMP and evaluation process. However, most of the meeting was dedicated to providing the public with an opportunity to give specific comments on UH's implementation of the CMP MAs. Appendix A4 also includes a copy of the meeting agenda, and the power point presentation that was shared at the meeting.

Website

We created a dedicated website as another means to inform, educate, and solicit public input on the independent evaluation, www.evalutetheCMP.com. Not only did the website provide information about the CMP, the evaluation process, and links to an exhaustive listing of resource materials related to Mauna Kea, but one of the primary purposes for the website was to provide the public another platform to submit comments. We received approximately 70 comments through the website. Individuals could leave comments, but their comments could not be viewed by others. Appendix A5 is a copy of some of the information posted on the website. The comments are not included in the Appendix because we did not get permission and most of the comments were not specifically related to the implementation of the CMP.

Facebook

At the time we launched the website, we launched a Facebook page as a social media platform to supplement the website. The Facebook page was an additional way of distributing information and announcements. No public comments were permitted to be posted to the Facebook page, but viewers were directed to the website to leave their comments.

Comments Submitted to Ku'iwalu Related to UH's implementation of the CMP

Besides the methods noted above, some comments were sent directly to Ku'iwalu. For example, we received written comments from the OHA, Imua TMT, Kimo Stone, Mililani Trask on behalf of Wahine Apapalani Hawaiian Cultural Practitioners, Bianca Isaki on behalf of KAHEA, Senator Kurt Fevella, Thayne Currie, Flores-Case 'Ohana, and numerous email form submissions from Mauna 'Aelike/Consensus Building 'Ohana.³⁷

Appendix A6 is a copy of these comments.

³⁷ Appendix A6 includes a copy of Kealoha Pisciotto's comments on behalf of Mauna Kea Anaina Hou, Mauna Kea Hui, Mauna Kea Moku Nui 'Aelike/Consensus Building 'Ohana and a copy of one of the form submissions received via email from Mauna 'Aelike/Consensus Building 'Ohana whose contents are identical to Kealoha Pisciotto's comments. We did not include in Appendix A1 all of the names who submitted Mauna 'Aelike/Consensus Building 'Ohana forms after November 5, 2020, the extended deadline to submit comments as posted on the website.

SUMMARY OF THE COMMENTS RELEVANT TO UH'S IMPLEMENTATION OF THE CMP³⁸

While the next section of the Report will include the public's assessment of UH's implementation of the CMP, this section of the Report will summarize some of the major themes specifically relevant to UH's implementation of the CMP. The Section titled "issues and Comments beyond the Scope of the CMP" will summarize or list some of the comments that are beyond the scope of the implementation of the CMP but should be considered in broader decision making related to Mauna Kea.

The cultural value of Mauna Kea continues to be "unrecognized" by UH as are the rights of Native Hawaiian cultural and religious practitioners

From the building of the initial telescopes in 1968 to the 1998 Auditor's Report, and to the implementation of the CMP, a consistent concern has been that UH has primarily focused on telescope development on Mauna Kea and the cultural value of Mauna Kea has been disregarded or largely unrecognized.³⁹ While we received comments from some Native Hawaiians who assert that Mauna Kea is not sacred, we received many more comments from members of the Native Hawaiian community and the general public that Mauna Kea is culturally significant. We also received specific comments from individuals and families who continue to exercise traditional and customary practices on Mauna Kea that have not been consulted with and felt that their rights have been disregarded or disrespected by OMKM.

For example, there was strong sentiment by Native Hawaiians active in the protest on Mauna Kea that the determination by OMKM as to what cultural resources and historic sites are significant, including the removal of some of those resources is not only inconsistent with the CMP but it also violates their constitutional protections under Article XII, Section 7 of the Hawaii State Constitution. They specifically assert that there has been little or no consultation with known families who have cultural or lineal connections to Mauna Kea, Kūpuna, and cultural and religious practitioners before the removal of these resources. They assert that these actions by OMKM are inconsistent with CMP MA CR-1, CR-4, CR-5, CR-6, CR-7, CR-8, CR-9, and CR-10.

Another example noted in the comments we received was that UH's initial draft of the administrative rules proposed to regulate Native Hawaiian traditional and customary rights while providing exemptions for commercial users. The commenters note that only after vocal opposition to the draft rules, were the final administrative rules revised to provide that "Native Hawaiian traditional and

³⁸ The comments provided during this process shall only be used for this independent evaluation. No permission has either been sought or granted to use the information, comments, or disclosures beyond this Report. No specific comments are attributed to any individual as we did not request nor receive permission to do so.

³⁹ 1998 Audit Report, Summary page.

customary rights as recognized and protected under article XII, section 7, of the Hawai'i State Constitution shall not be abridged."⁴⁰

There is a lack of genuine community engagement and cultural education by UH as required by the CMP.

A consistent comment from outside of UH Management Entities is that there has not been genuine community outreach and cultural education as required by CMP MA EO-1, EO-2, EO-3, and EO-7. Even some UH Management Entities note that this is one area in the CMP that UH could improve on. Comments by UH-Hilo Entities believe that community engagement was primarily through MKMB meetings and UH BOR meetings as these meetings are open to the public. UH-Hilo Entities felt that beyond the MKMB publicly noticed meetings, it was the role of the UH System in Mānoa to manage the communications with the community because UH-Hilo Entities do not have the resources, given that most of them are voluntary boards.

In addition to OMKM's deficiencies noted above, the CMP MA related to Education and Outreach, there were comments that OMKM failed to inform the public of the results of the management activities in a timely manner and failed to timely complete the five-year review as required under CMP MA MEU-1 and MEU-2, respectively.

With respect to cultural consultation, UH-Hilo Entities believe that it is the kuleana of KKM to engage with the Native Hawaiian community because of their cultural experience and expertise. Although KKM meetings are not subject to the sunshine law and therefore not required to be open to the public, KKM is comfortable in making their collective recommendations to OMKM based upon their cultural experience and expertise. Like MKMB, members of KKM commented that they are a voluntary board who are doing the best they can with their limited resources. KKM has provided OMKM recommendations on removal of offerings, scattering of human remains, construction of new cultural features including stacking of rocks, and they review any proposed changes by observatories to their facilities on Mauna Kea. Although most of the UH Management Entities believe they are in compliance with the CMP, the UH BOR has directed the 'Imiloa Astronomy Center to take a more active role in community engagement and cultural education.⁴¹

⁴⁰ Section 20-26-3, Hawaii Administrative Rules (HAR).

⁴¹ University of Hawai'i Board of Regents Resolution 19-03, Adopted November 6, 2019, Amended, July 1, 2020 (BOR Resolution 19-03). BOR Resolution 19-03 specifically determined that there remain unmet responsibilities and ongoing compliance issues that have delayed completion of certain recommendations and requirements under the Management Plans. Action Item No. 5 specifically provides, "In collaboration with OMKM and MKSS, the 'Imiloa Astronomy Center shall develop a suite of educational programs regarding Maunakea including but not limited to Native Hawaiian culture, history, environmental, and biological considerations designed for tour guides and drivers, employees, contractors, recreational users, scientists and observatory workers, and visitors, as required by the Management Plan, by August 31, 2020. OMKM shall report to the Board of Regents on its plans and progress to implement said educational programs at its February 2020 meeting. Administration shall make a budget request during the 2020 legislative session to fund this action item."

UH has generally done a good job in managing the cultural and natural resources, but there is no independent review or accountability on the integrity of the studies or reports, and the completion of many of the CMP actions are overdue.

Most of the comments we heard from government agencies, observatories, commercial and recreational users, and some Native Hawaiians, expressed that the cultural and natural resources are being better managed and protected by OMKM than prior to the 1998 Audit. Many have indicated that the wekiu bug population has increased, the historic sites are being monitored regularly under the archaeological monitoring plan, the OMKM Rangers are doing a great job educating visitors about staying on the trail and picking up their trash, the Mauna Kea silversword population has increased, and the access road is better maintained, especially during the snowy winter season.

On the other hand, we also heard comments that archaeological monitoring plans were long overdue, that the reports indicating the wekiu bug population increase were to support delisting it from the endangered species list, that the archaeological work for the northern plateau was altered to show no cultural sites where TMT is going to be built, and that cultural descendants from the area were never consulted on those reports. These comments are related to MAs NR-1⁴² to NR-18. This independent evaluation did not review the reports or studies referenced by OMKM for accuracy or scientific integrity.

There is an inherent conflict of interest by having UH as the lessee of the state conservation lands and the applicant for new telescope development.

We heard strong comments from members of the Native Hawaiian community that UH's role to advocate for new telescope development as the applicant for the CDUA conflicts with UH's ability to properly manage and protect the valued cultural and natural resources within the state conservation lands. In relevant part, Section 7.3.4 of the CMP related to Future Land Uses specifically emphasized that "the CMP manages resources, it does not advocate or promote new telescope development."

Contrary to the CMP, the dual roles of UH as land manager and as developer creates at least an appearance of a conflict of interest that have caused some Native Hawaiians to question the credibility and integrity of the scientific, historic, cultural, and environmental reports that OMKM produced pursuant to the CMP MAs. Some comments specifically noted that CMP MA FLU-2 required UH to develop land use zones in the Astronomy Precinct and the goal of this process was to refine telescope siting areas defined in the 2000 Master Plan based upon updated cultural and natural resource information. For example, TMT is being proposed to be built in the northern plateau in an area where the 2000 Master Plan

⁴² NR refers to Natural Resources (NR). See CMP section 7.1.2.

says no telescope development. This conflict of interest adds to the diminished trust between UH and many members of the Native Hawaiian community.

We also heard comments from UH-Hilo Entities that it was “awkward” having UH as the applicant for the CDUA for TMT. In fact, they felt their relationship with members of the Native Hawaiian community changed when they became the applicant for the TMT CDUA; they felt they were no longer viewed as being neutral land managers but telescope developers. Beyond the issue of the appearance of a conflict of interest, the UH Management Entities have commented that ideally, they would prefer having a smaller state lease of only the 525 acres of the Astronomy Precinct and contribute funds to DLNR or another appropriate entity to manage the 10,000 acres consisting of the Natural and Cultural Preservation Area. Similar comments were made by some of the observatories. There were a few comments that wanted to explore the possibility of having a Native Hawaiian entity or third party manage all the state conservation lands or at least the 10,000 acres of Natural and Cultural Preservation Area.

The current UH governance structure is not effective in managing Mauna Kea.

It is worth noting that most of the comments related to the effectiveness of the governance structure was made by UH Management Entities. The UH-Hilo Entities strongly believe that decision making related to Mauna Kea needs to be made by UH-Hilo Entities on Hawai'i Island. In addition, these same entities believe that OMKM is doing a fairly good job in implementing the CMP.

On the other hand, several of the UH Management Entities outside of UH-Hilo believe that the public perception is that OMKM is not doing a good job stewarding Mauna Kea. They believe that OMKM has not engaged the community, in particular members of the Native Hawaiian community. They also believe that OMKM has not effectively developed cultural education materials, information, or opportunities to collaborate with members of the Native Hawaiian community and organizations to promote cultural education and understanding of Mauna Kea. In response to the perceived deficiency, UH BOR Resolution 19-03 has proposed and begun implementing structural changes to the management of Mauna Kea.⁴³

With respect to the broader public comments on the effectiveness of the UH governance structure, most see UH as one entity. They either believe that the UH existing structure is doing a good job, or they believe that UH is mismanaging Mauna Kea and there is very little in between. There were a few comments that wanted to explore the possibility of having a Native Hawaiian entity or third party manage all the state conservation lands or at least the 10,000 acres of Natural and Cultural Preservation Area.

⁴³ BOR Resolution 19-03. Action Item No. 9 provides in relevant part, “As part of the reorganization and restructuring plan, an in-depth analysis will be done to determine whether the management of the Maunakea Science Reserve would be better served if transferred to a governmental authority or other third party entity, or through alternate management mechanisms.”

ISSUES AND COMMENTS BEYOND THE SCOPE OF THE CMP

There were numerous comments that were beyond the scope of the implementation of the CMP. We did not want to discount these comments as some of these issues had been identified in the CMP (see Section 2.1.4) and continue to linger as unresolved issues. Similar to the CMP, we wanted to respect and honor those comments by noting them below for appropriate consideration beyond this Report.

UH has not kept its “promises” to remove telescopes from Mauna Kea before proposing new telescope development.

This comment primarily related to the issue of timely decommissioning telescopes from the summit of Mauna Kea before any new telescope is constructed. As noted in the CMP, “the basis for this [decommissioning] was not only to preserve a ‘zero net gain’ of telescopes, but also because of the recognition that decommissioning is perhaps the most tangible form of actually listening to the community’s concerns that before new telescopes can be considered some obsolete facilities must come down.”⁴⁴ In listening to members of the Native Hawaiian community, for many who say UH hasn’t kept their promises, they refer to UH’s representations during the early years of the state lease that there would only be 13 telescopes. But now, UH is proposing the world’s largest telescope (TMT) before removing any telescope; 13 to 0.⁴⁵ We also heard from non-Native Hawaiians, that in order to show some good will, UH needs to facilitate the decommissioning process. In response, the UH BOR has established an accelerated schedule for the decommissioning of up to possibly five (5) telescopes.⁴⁶ However, there are many people in the community, including Native Hawaiians, who would like to see the retention of existing telescopes that are not obsolete as well as the construction of TMT because of the educational and economic benefits beyond the lease termination in 2033.

UH should not be managing the cultural and natural resources and should only manage the astronomy precinct.

Similar to the comments we heard related to governance, there were many comments, both from within UH and external to UH, that expressed that UH should not be managing the 10,763 acres of Natural and Cultural Preservation Area. Some of the comments expressed by UH Management Entities are that managing the state conservation lands to preserve and protect resources is outside of UH’s mission of education. Other comments, especially by members of the Native Hawaiian community is that UH should not be managing any of the state

⁴⁴ CMP, page 4-6.

⁴⁵ Some within the Native Hawaiian community say 13 telescopes for astronomy and 0 telescopes have come down for the Native Hawaiian community.

⁴⁶ BOR Resolution 19-03. Action item No. 1 relates to the decommissioning of the Caltech Submillimeter Observatory and the Hokuakea sites. Action item No. 2 relates to establishing a schedule for the decommissioning process of the two sites by December 31, 2021. Action item No. 4 sets a date of December 30, 2025 to determine decommissioning of three (3) additional observatory sites, if required.

conservation lands at Mauna Kea because they do not have the cultural expertise to be stewarding one of the most significant cultural resources to the Native Hawaiian community. On the other hand, there were comments that if the 10,763 acres were to be returned to DLNR to manage, DLNR does not have the resources or capacity to preserve and protect the cultural and natural resources within the preservation area; the resources are better protected under UH. In addition, UH's management, especially by the OMKM Rangers, of the state conservation lands, provides additional protection to the adjacent DLNR's Mauna Kea Ice Age Natural Area Reserve and the State Mauna Kea Forest Reserve.

There is presumption that BLNR is going to renew the state lease to UH for the state conservation lands at Mauna Kea.

We received many comments that the renewal of the state lease to UH is a “done deal” because BLNR would not have approved the sublease to TMT if they did not anticipate renewing the state lease to UH. There were many comments by members of the Native Hawaiian community, that the state process is not fair, and it favors telescope development. For this reason, several of those same community members expressed that they do not trust UH, DLNR, or even the independence of this Report.

Other issues raised that were beyond the scope of the CMP and not fully discussed.

Rather than going into great detail, the following is a list of those issues:

- Use of ceded lands which have been “stolen” from the Hawaiian Kingdom;
- \$1 a year for lease rent does not accurately reflect the market value of the free telescope viewing time to UH;
- Ownership of the access road;
- Role of the Department of Hawaiian Home Lands in the management of Mauna Kea;
- Establish a Mauna Kea Reserve Commission, similar to the Kaho'olawe Island Reserve Commission, to oversee the management of Mauna Kea;
- There are really more than 13 telescopes on Mauna Kea because some observatories have multiple facilities; and
- The State should use the federal Section 106 consultation process to engage Native Hawaiian individuals and organizations.

EVALUATION PROCESS AND OUTCOME

CMP REPORTING AND EVALUATION REQUIREMENTS

Section 7 of the CMP, describes the natural progression from (1) the MAs that are needed to address the various management needs, (2) that the MAs are organized by topic into four (4) major MCPs, (3) the MCPs were developed using the best available scientific and cultural information and community input, to support the **mission** to preserve, protect and enhance the cultural and natural resources within the UH Management Areas, and (4) each MCP emphasized the importance of coordinating with other agencies, adjacent landowners, and other stakeholders, including cultural practitioners and families with cultural or lineal connections to Mauna Kea to incorporate Native Hawaiian cultural values and traditional knowledge into management planning and activities.⁴⁷

The Mission of the Office of Mauna Kea Management is to achieve harmony, balance and trust in the sustainable management and stewardship of Mauna Kea Science Reserve through community involvement and programs that protect, preserve and enhance the natural, cultural and recreational resources of Maunakea while providing a world-class center dedicated to education, research and astronomy.

Section 7.4.2 of the CMP outlines the process for monitoring, evaluating, and updating the CMP to meet the “desired outcomes”⁴⁸ as set forth in the CMP. The purpose of the desired outcome is to “determine whether management actions are achieving the goals of the CMP and to provide a process for improving and updating management strategies through evaluation and revisions of the CMP.”⁴⁹ To determine whether the desired outcomes have been achieved, the CMP requires regular monitoring⁵⁰ and evaluation⁵¹ of the CMP to determine if the management actions are effective over time and are meeting management needs to ensure the best possible protection is afforded Mauna Kea’s resources. Pursuant to the adaptive management approach, evaluations should be done annually with review and revisions occurring every 5 years as updated information on the resources become known. Five-year evaluations and revisions should include consultation with federal and state agencies and the local community, to

⁴⁷ CMP, page 7-1.

⁴⁸ “Desired Outcome” summarizes the goal(s) of the management component plans. CMP, page 7-1.

⁴⁹ CMP, page 7-63.

⁵⁰ MA MEU-1 requires “OMKM to provide an annual progress report describing in detail the management goals, objectives, and actions for the year and what progress was made towards meeting them. The Progress Report should also describe actions to be taken to improve the program for the next year(s). The Progress Report is not intended to be a status report on the resources in the UH Management Areas; rather, it is meant to inform management and stakeholders of the progress of the program and direction it is to take in the future.” In addition, MEU-1 requires OMKM to provide Five Year Outcome Analysis Reports. CMP, at page 7.65.

⁵¹ MA MEU-2 provides that the CMP should be updated every five years, based on data collected during various program management activities (e.g. natural or cultural resources monitoring, research projects). Id.

inform stakeholders on program progress, and to gather input on changes or additions to management activities.

While OMKM has submitted annual reports to BLNR on their implementation of the MAs, OMKM has not prepared the Five-Year Outcome Analysis Report (Analysis Report). Presumably, the Analysis Report would have utilized the adaptive management approach and summarized the data collected during the monitoring and research studies to determine the effectiveness of the management actions on preserving and protecting the resources on Mauna Kea. Thus, in the absence of the Analysis Report, we had to utilize an alternative evaluation model to conduct the independent evaluation.

THE LOGIC MODEL METHOD WAS USED TO CONDUCT THE INDEPENDENT EVALUATION

Based upon the Project Team's experience and expertise, a Logic Model⁵² approach was determined to be the most appropriate to conduct the independent evaluation of OMKM's implementation of the CMP. This model specifically focuses on whether the MAs that were completed (output) by OMKM achieved the desired outcomes as set forth in each of the MCPs. Each MCP identified MAs to address the needs⁵³ in order to achieve the desired outcomes.

There are four (4) MCPs:

- 7.1 Understanding and protecting Mauna Kea's Cultural and Natural Resources
 - 7.1.1 Native Hawaiian Cultural Resources
 - 7.1.2 Natural Resources
 - 7.1.3 Education and Outreach
 - 7.1.4 Astronomy Resources
- 7.2 Managing Access, Activities and Uses
 - 7.2.1 Activities and Use
 - 7.2.2 Permitting and Enforcement

⁵² A logic model is a systematic and visual way to present and share an understanding of the relationship among resources that were chosen to operate your program, the activities you plan, and the changes or results you hope to achieve." W.K. Kellogg Foundation 2004, <http://toolkit.pellinstitute.org/evaluation-guide/plan-budget/using-a-logic-model/>

⁵³ The CMP defines "Need" as the background information on what type of management actions are needed to achieve the desired outcome and why they are needed. To achieve the desired outcomes, management needs were developed in four areas: education, information gathering, management measures, and rules and enforcement.

- 7.3 Managing the Built Environment
 - 7.3.1 Infrastructure and Maintenance
 - 7.3.2 Construction Guidelines
 - 7.3.3 Site Recycling, Decommissioning, Demolition and Restoration
 - 7.3.4 Considering Future Land Use
- 7.4 Managing Operations
 - 7.4.1 Operations and Implementation
 - 7.4.2 Monitoring, Evaluation, and Updates

For the independent evaluation, the Project Team reviewed, (1) the MCP MAs and desired outcomes, (2) OMKM's implementation of the MAs based upon their annual reports and updates, (3) public input based upon comments provided through the website, the three virtual community meetings, and stakeholder input, and (4) the specific impact of OMKM's actions to achieve the desired outcomes. The details of these reviews are included in Appendix B.

However, for ease of review, we have prepared a Summary of the Independent Evaluation for each MCP in tables below. Each table has five columns as shown:

MCP Section and Desired Outcome	OMKM Implementation Status	Public Input	Independent Evaluation of Impact on Outcome	Recommendations
---------------------------------	----------------------------	--------------	---	-----------------

The content of each column is described below:

1. The ***MCP Section and Desired Outcome*** as specifically provided in the CMP;
2. The ***OMKM Implementation Status*** shows the total number of actions or activities implemented in that specific section and the action status reported in the OMKM 2020 Annual Report;⁵⁴
3. ***Public⁵⁵ Input*** summarizes a range of some of the comments we received from the three virtual community meetings, comments, website, and stakeholder meetings;

⁵⁴ OMKM 2020 Annual Report to the Board of Land and Natural Resources, Status of the Implementation of the Mauna Kea Comprehensive Management Plan. See Appendix A.7

⁵⁵ "Public" includes interested stakeholders and general public. See Section titled "Stakeholders and General Public" and Appendix A1.

4. The ***Independent Evaluation of Impact on Outcome*** is a qualitative assessment by the Project Team based primarily on public input.⁵⁶ Three levels are indicated: “**Good progress on achieving Outcome,**” “**Some progress on achieving Outcome,**” and “**Minimal progress on achieving Outcome.**”
5. ***Recommendations*** include the type of metric that could be developed in the CMP revision to track outcomes more quantitatively.

⁵⁶ The CMP utilized key concepts from *adaptive management* in developing the management actions. “*Adaptive management* is defined as a systematic process for continually improving management policies and practices for resource protection by learning from the outcomes of past and current management activities. Adaptive management recognizes that there is a level of uncertainty about the ‘best policy or practice for a particular management issue, and therefore requires that each management decision be revisited in the future to determine if it is providing the desired outcome. Management actions in a plan guided by adaptive management can be viewed as hypotheses and their implementation as test of those hypotheses. Once an action has been completed, the next, equally important, step in an adaptive management protocol is the assessment of the actions effectiveness (results). A review and evaluation of the results allows managers to decide whether to continue the action or to change course. This experimental approach to resource management means that regular feedback guides managers’ decision and ensure that future strategies better define and approach the objective of the management plan.” CMP, page 2-6. Since the CMP had not been previously evaluated based a set of metrics or measures, the Project Team has to rely public and other government agencies input to assess whether OMKM effectively implemented the CMP to achieve the desired outcomes.

Table 1: Summary Table on the Independent Evaluation on Achieving the Desired CMP Outcomes

MCP Section & Desired Outcome	OMKM's Self-Assessment	Public Input	Independent Evaluation of Impact on Desired Outcome	Recommendations
7.1 Understanding and Protecting Mauna Kea's Cultural and Natural Resources				
7.1.1 Native Hawaiian Cultural Resources: Increase understanding and appreciation of Native Hawaiian history and cultural practices related to Mauna Kea to ensure that these practices are protected and respected. Identify, document the condition of, and protect cultural resources and historic properties in the UH Management Areas.	Of the 14 Actions: <ul style="list-style-type: none"> Five are "ongoing" Nine are "completed." Training and educational programs have been developed. Many cultural practices have been protected with the HAR. HAR Chapter 2-26 was not adopted until January 2020. OMKM placed ads inviting community members to participate in talk story session. KKM hosted one talk story session on matters related to CMP actions, with representatives from DLNR, DHHL, OHA and members of the Native Hawaiian community.	Materials and training programs developed have insufficient content from Native Hawaiian cultural perspectives and materials prepared by OMKM shows a lack of cultural sensitivity and understanding. Cultural stakeholders feel they have not been consulted about content and protocols on cultural issues or practices. KKM review is not sufficient. KKM meetings are not open and they have not consulted with cultural stakeholders. OMKM has removed cultural offerings, ahus, stackings of pōhaku, and cultural features, without consulting with families who have cultural and lineal connections to Mauna Kea, Kūpuna, cultural practitioners, OHA, and other NHOs (hereinafter collectively NHOs). There is a lack of Hawaiian decision making in matters related to identification and protocols related to cultural resources. Cultural and religious practitioners felt the initial draft admin rules violated Art XII, Section 7. There is a lack of cultural presence on Mauna Kea because all you see are observatories. The archaeological documents are not subject to independent scrutiny. The archaeological monitoring reports have not been timely submitted.	Some Progress on Achieving Outcome Specific actions have been completed or are ongoing. However, the admin rules to protect the cultural resources was not codified until January 2020. Unclear if the materials and training programs are sufficient to increase understanding of Native Hawaiian history and cultural practices related to Mauna Kea.	Actions should be completed in a timelier fashion When developing materials related to Native Hawaiian history and cultural practices, NHOs should be involved in developing and reviewing the materials and providing suggestions. There needs to be greater clarity of the role of KKM with respect to engaging and coordinating with NHOs on cultural issues and protocols.

MCP Section & Desired Outcome	OMKM's Self-Assessment	Public Input	Independent Evaluation of Impact on Desired Outcome	Recommendations
<p>7.1.2 Natural Resources: Increase understanding of the status of natural resources (biotic and abiotic) and identify threats to these resources in order to better protect and preserve unique geological features, ecosystem functions, subalpine and alpine habitats, and biological communities through adaptive management of stressors and threats.</p>	<p>Of the 18 Actions</p> <ul style="list-style-type: none"> • Two are “completed/ongoing” • 15 are “ongoing” • The status of NR-14 requiring use of adaptive management to review programs annually and update CMP every 5 years based on results of program review, is reported as “ongoing.” However, it is unclear if programs have been reviewed annually. Also, there had not been a revision of the CMP since the original. <p>HAR effective January 2020 to limit threats to natural resources.</p> <p>Studies were undertaken, and plans developed and implemented.</p>	<p>OMKM has done a good job managing natural resources by managing invasive species, protecting the wekiu bug habitat, and conducting biological studies.</p> <p>Baseline surveys took time but are especially important to develop long term management programs.</p> <p>Unsure how to access some of the studies.</p> <p>Studies are not subject to public or peer scrutiny.</p>	<p>Good progress on Achieving Desired Outcome</p> <p>OMKM has done a good job at increasing the understanding of the status of natural resources and identifying threats. The public needs to better understand what is being studied and the results of those studies.</p> <p>Over the past ten years are the natural resources on Mauna Kea in better condition? Same? Worse? What needs to be focused on in the next ten years?</p> <p>People need to know how to access studies.</p>	<p>Studies should be easily accessible to the public – available to download online.</p> <p>Develop a Natural Resources Dashboard that shows metrics that track the status of natural resources, for example: annually what is the number of invasive species? Show a report card on the health of the natural resources.</p>

MCP Section & Desired Outcome	OMKM's Self-Assessment	Public Input	Independent Evaluation of Impact on Desired Outcome	Recommendations
<p>7.1.3 Education & Outreach: Build & maintain a constituency to engage in active and meaningful stewardship of Mauna Kea, through education and involvement of the public, to support, enhance conservation, and sustain the natural, cultural, and astronomical resources of Mauna Kea.</p>	<p>Of the eight Actions</p> <ul style="list-style-type: none"> • Six are "ongoing" • One is "completed/ongoing" • One is "In progress." <p>Developed orientation program for people working on Mauna Kea.</p> <p>There have been outreach efforts in schools and with volunteers.</p> <p>Output measures provided in the 2020 Annual Report to DLNR:</p> <p>Approximately 1,500 individuals have a current, valid orientation certificate.</p> <p>124 community updates conducted over 12 years, 63 community outreach events conducted over nine years, and 19 symposiums, conferences and special events conducted over eight years. 30 presentations in the Maunakea Speakers Series. 110 OMKM E-newsletters issued over nine years, and 102 Astronomy E-newsletters issued over six years.</p> <p>Two brochures developed and updated, social media presence, YouTube video, and young-people oriented materials.</p> <p>58 projects with 1,493 volunteers conducted over nine years.</p>	<p>There has been little community engagement and outreach. OMKM needs to develop relationships with the broader community beyond their supporters.</p> <p>The public does not know all the good things that are happening on Mauna Kea. UH does not do a good job communicating to the public about the work being done on Mauna Kea.</p> <p>The orientation video lacks Native Hawaiian cultural perspective and sensitivity of the long-standing hurts, pains, and concerns by the Native Hawaiian community on imbalance between protecting cultural resources and pursuing telescope development.</p> <p>Visitors should be required to take the orientation training or video before accessing Mauna Kea summit to ensure a better understanding of the cultural resources on Mauna Kea.</p> <p>OMKM and KKM have not consulted with NHOs in decision making for management of Mauna Kea.</p> <p>The educational materials lack the cultural perspective.</p> <p>There are members of the Native Hawaiian community who do not believe Mauna Kea is sacred and would like to see telescope use continue on Mauna Kea.</p> <p><i>'Imiloa's A Hua He Inoa: Hawaiian Culture Based Celestial Naming</i> program is globally known and admired.</p>	<p>Minimal progress on Achieving Outcome.</p> <p>A lot of actions have taken place and been documented by OMKM.</p> <p>However, in the actions undertaken it is unclear if the programs have achieved the desired outcome of building and maintaining a larger and/or stronger constituency to steward Mauna Kea.</p> <p>Also, no sense of how far the programs have reached – for example, the number of unique volunteers v. total number at each session.</p>	<p>Outcome measures could include OMKM implementing metrics on the impact their activities have had on building their constituency; whether workers and visitors to Mauna Kea have increased their awareness and appreciation of Mauna Kea's cultural, historical, and natural resources. In addition, recommend measuring how well the community's perception of transparency and involvement have changed.</p> <p>In addition to those who work on Mauna Kea, visitors should be required to watch the video to familiarize themselves with the cultural significance of Mauna Kea.</p> <p>Utilize 'Imiloa Astronomy Center to develop culturally based materials to educate and raise awareness of the cultural and natural resources on Mauna Kea, including the <i>A Hua He Inoa</i> program. Utilize 'Imiloa Astronomy Center to take a more active role in community outreach.</p>

MCP Section & Desired Outcome	OMKM's Self-Assessment	Public Input	Independent Evaluation of Impact on Desired Outcome	Recommendations
7.1.4 Astronomy Resources: Maintain Mauna Kea's unique environment that makes it a premiere location for astronomical observation. Operate the scientific reserve as a buffer zone to prevent the intrusion of activities incompatible with the use of the land as a scientific complex or observatory.	<p>Of the two Actions</p> <ul style="list-style-type: none"> Two are "Ongoing" <p>Administrative rules became effective in January 2020.</p> <p>Working on monitoring and minimizing the light pollution, radio frequency interference and dust.</p>	<p>Astronomy stakeholders believe that OMKM is doing a good job in managing the area.</p> <p>They believe that OMKM could have more regular, ongoing communications rather than waiting until big issues arise.</p>	<p>Good progress on Achieving Outcome</p> <p>The Administrative rules were passed to formalize protection of the area for astronomy.</p> <p>Timing could have been faster.</p>	<p>Outcome measures could include an annual survey of astronomical stakeholders tracking how well OMKM has done in maintaining the unique environment of Mauna Kea.</p>
7.2 Managing Access, Activities and Uses				
7.2.1 Activities and Uses: Retain and enhance recreational and cultural activities, ensure regulation of commercial activities, and support scientific studies while maintaining adequate protection of resources, educating users regarding resource sensitivity, and ensuring the health and safety of those visiting or working at Mauna Kea.	<p>Of the 12 Actions</p> <ul style="list-style-type: none"> Eight are "Complete/Ongoing" Four are "Ongoing" <p>Administrative rules became effective in January 2020.</p> <p>OMKM initiated a study in 2019 to assess the capacity for commercial tour operations.</p>	<p>The community is generally positive about how OMKM has maintained and protected the resources on Mauna Kea. The feeling is that the area has improved significantly under the OMKM management.</p> <p>Rangers received many compliments on their knowledge and guidance that they provide to visitors.</p> <p>There needs to be better management limiting the number of cars allowed to drive the access road to the summit. UH is considering a shuttle service to manage access by visitors.</p> <p>Some of the commercial operators conduct their own cultural orientation to their customers to ensure that they conduct themselves in a respectful and appropriate manner when on Mauna Kea.</p>	<p>Good progress on Achieving Outcome</p> <p>The Administrative rules were passed to codify restrictions and regulations.</p> <p>Timing could have been faster.</p>	<p>Outcome measures could include periodic surveys of Mauna Kea visitors, commercial tour operators, and others accessing the site on how well OMKM is managing the area.</p>

MCP Section & Desired Outcome	OMKM's Self-Assessment	Public Input	Independent Evaluation of Impact on Desired Outcome	Recommendations
7.2.2 Permitting & Enforcement: Achieve compliance with existing and any new policies and regulations designed to manage and minimize human impacts, to preserve and protect Mauna Kea's resources.	Of the eight Actions <ul style="list-style-type: none"> Six are "Ongoing" Two are "Completed" Administrative rules became effective in January 2020. Since 2000, there were 103 community engagement and outreach actions taken related to the development of the administrative rules, including updates, consultations, briefings, open houses, and public hearings.	Generally positive feedback on the level of policies and regulations. Positive level of enforcement primarily attributed to the Rangers. Rangers are doing a good job of educating visitors to stay on the trails and not to park their cars where they can damage the natural and cultural resources. There needs to be better management of the commercial operators and increased fees towards management of Mauna Kea resources; as there is unlimited access by recreational users (tourists), yet cultural practitioners are regulated. Lack of coordination and clarity between County enforcement and DOCARE on jurisdiction of access road.	Good progress on Achieving Outcome The Administrative rules were passed to codify restrictions and regulations, but it took over 10 years to adopt the rules.	
7.3 Managing the Built Environment				
7.3.1 Infrastructure and Maintenance: Manage the built environment by implementing an Operations, Monitoring and Maintenance Plan (OMMP) containing specific maintenance strategies and protocols that will result in minimal disruptions to activities and uses, minimize impacts to the resources, and ensure that permittees remain compliant with their CDUP requirements.	Of the 14 Actions <ul style="list-style-type: none"> Ten are "Ongoing" Three are "Completed/Ongoing" One is "In Progress" Administrative rules became effective in January 2020. An Operations Monitoring and Maintenance Plan was reviewed by KKM and approved by MKMB. Procedures have been put in place and studies are being conducted.	Generally positive feedback on how OMKM is managing and maintaining the infrastructure within the area. Many of the existing observatories are incorporating sustainable technologies into their facilities.	Good progress on Achieving Outcome The Administrative rules were passed to codify restrictions and regulations. Timing could have been faster.	Recommend reporting on the outcome of the various studies being conducted and how those studies will be used in the future.
7.3.2 Construction Guidelines: Minimize adverse impacts to resources during all phases of construction, through use of innovative best management practices.	Of the nine Actions <ul style="list-style-type: none"> Nine are "Ongoing" TMT is the first project requiring construction guidelines. All the guidelines have been included as part of the proposed TMT Management Plan in its CDUA.	Given that construction has yet to begin, no feedback on how well the adverse impacts have been minimized. KKM is reviewing any construction activity that could involve ground disturbance, to ensure cultural resources are not disturbed.	Good progress on Achieving Outcome	

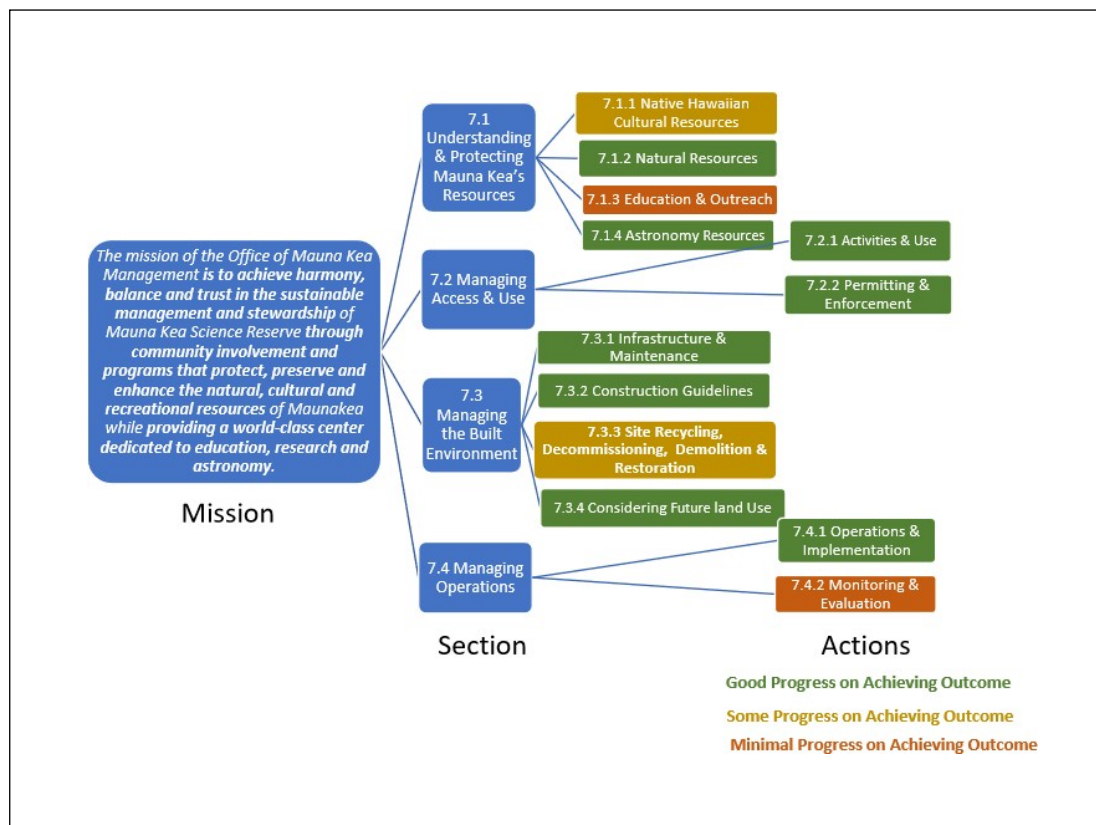
MCP Section & Desired Outcome	OMKM's Self-Assessment	Public Input	Independent Evaluation of Impact on Desired Outcome	Recommendations
<p>7.3.3 Site Recycling, Decommissioning, Demolition, and Restoration: To the extent possible, reduce the area disturbed by physical structures within the UH Management Areas by upgrading and reusing buildings and equipment at existing locations, removing obsolete facilities, and restoring impacted sites to pre-disturbed condition.</p>	<p>Of the three Actions</p> <ul style="list-style-type: none"> Three are "Ongoing" <p>All the actions have been incorporated into planning for TMT, the first new facility.</p> <p>The 2010 Decommissioning Plan has a defined process. Two of the sites have started the process in 2019.</p>	<p>Feedback has focused on the observatories that are no longer in use on Mauna Kea. Actions to begin the decommissioning process only started in 2019, leaving community members to wonder why it took so long.</p> <p>UH represented/promised to the community no more than 13 telescopes would be built on Mauna Kea. UH should have timely decommissioned some telescopes before new telescopes are constructed (TMT). There is at least one telescope on Mauna Kea that is not in use, but there has been no attempt to remove it.</p> <p>At the end of the state lease in 2032, all the telescopes need to be decommissioned and the site restored.</p> <p>The CMP does not require decommissioning of telescopes that are not obsolete.</p> <p>BOR, through Resolution 19-03, has established a schedule to timely decommission at least two telescopes by December 2021 and a determination whether to decommission possibly three more telescopes by December 2021.</p>	<p>Some Progress on Achieving Outcome</p> <p>Decommissioning requirements included in the TMT Management Plan.</p> <p>Actions on decommissioning some of the sites only began in 2019.</p>	
<p>7.3.4 Considering Future Land Use: To protect cultural and natural resources in the assessment of future projects.</p>	<p>Of the seven Actions</p> <ul style="list-style-type: none"> All seven are "Ongoing" <p>Of the seven actions in the plan, all have been incorporated in planning for TMT, the first new facility.</p> <p>UH President Lassner confirmed that TMT will be the last telescope to be built on undisturbed land.</p>	<p>Community input has been both for and against constructing TMT.</p> <p>TMT is being proposed to be developed in an area that is outside of the 2000 Master Plan because OMKM has not developed a map of land use where development will not be allowed.</p>	<p>Good progress on Achieving Outcome</p>	

MCP Section & Desired Outcome	OMKM's Self-Assessment	Public Input	Independent Evaluation of Impact on Desired Outcome	Recommendations
7.4 Managing Operations				
7.4.1 Operations and Implementation: Conduct effective operations to support management that is focused on resource protection, education, and public safety.	Of the 5 Actions <ul style="list-style-type: none"> Two are "Ongoing" Two are "Completed" One is "Completed/Ongoing" <p>MKMB meets regularly, holds public meetings which includes consultation with KKM. OMKM, KKM and MKMB are responsible for the review of projects proposed for UH's managed lands compliance with DLNR conservation district rules and the CMP.</p> <p>Public can attend the MKMB meetings.</p>	<p>Public comments were mixed on this MA. The observatories feel that OMKM and MKSS are doing a good job with operation and maintenance. Other government agencies, including DLNR, feel that OMKM and the Rangers are doing a really good job managing the land uses to preserve and protect the cultural and natural resources. The Rangers are the "eyes and ears" on Mauna Kea, they ensure public safety for everyone. There has been great improvement since the 1998 Audit report.</p> <p>There were public comments, especially from members of the Native Hawaiian community that there has been no involvement or discussion with the community and stakeholders on resource management.</p> <p>There is disconnect between UH-Hilo Management Entities and UH Systems.</p>	Good progress on Achieving Outcome	
7.4.2 Monitoring, Evaluation, and Updates: Determine whether management actions are achieving the goals of the CMP and provide a process for improving and updating management strategies through evaluation and revisions of the CMP.	Of the three Actions <ul style="list-style-type: none"> Three are "Ongoing" <p>MEU-2 requires OMKM to "conduct regular updates of the CMP that reflect outcomes of the evaluation process, and that incorporate added information about the resources."</p> <p>OMKM is in the process of drafting the 5-year Outcome Analysis Report.</p>	<p>Unclear if OMKM has evaluated whether the CMP actions they have undertaken has made progress on achieving stated Desired Outcomes.</p> <p>The public has not been involved nor provided input into OMKM's annual reports to BLNR.</p> <p>OMKM has not completed a 5-year CMP update since the approval of the CMP.</p>	Minimal progress on Achieving Outcome. <p>If the CMP had been reviewed and updated in a timely manner, it is likely that Outcome measures would have been developed and tracked over time.</p>	Develop appropriate measures to track progress being made toward achieving Desired Outcomes. These measures will serve as indicators of whether progress is being made or if actions need to be adjusted to better achieve the Outcomes.

OVERALL SUMMARY OF OMKM'S IMPLEMENTATION OF THE CMP

The diagram below illustrates how the MCPs of the CMP connect to achieve OMKM's Mission. The color codes are the same as used in the Evaluation of Impact on Outcomes. Under the four (4) MCPs, there are twelve (12) desired outcomes. Overall, good progress was made on achieving eight of the desired outcomes; some progress was made on achieving two of the desired outcomes and minimal progress was made on achieving two of the desired outcomes.

Figure 2: The Links Between the OMKM Mission and MCP Management Actions



AREAS WHERE OMKM HAS NOT EFFECTIVELY IMPLEMENTED THE CMP TO ACHIEVE THE DESIRED OUTCOMES

As noted above, OMKM has made, in some cases, significant strides in implementing the CMP to achieve the desired outcomes, particularly in the areas of the “nuts and bolts” of managing the land uses and activities and supporting astronomy. However, in the areas of Native Hawaiian Cultural Resources, Education and Outreach, decommissioning, and evaluation, OMKM has not effectively achieved the desired outcomes. Based primarily on public input, the

following are some of the significant “disconnects” between OMKM and the public, in particular, the Native Hawaiian community, in achieving the desired outcomes:

Outreach and communications

Insufficient outreach and communications with stakeholders and the community resulted in many not knowing what was taking place on Mauna Kea. For example, OMKM conducted many studies, but stakeholders did not understand how to access them. There is no dashboard that shows the conditions of natural resources on Mauna Kea such as number of invasive species reported, number of visitors, etc. overtime. Accessing documents shared at MKMB meetings requires accessing the OMKM website, and multiple clicks to find the right documents.

Cultural Education

Materials and programs developed to educate staff and visitors about Mauna Kea lacked the Native Hawaiian perspective on its importance. Native Hawaiian practitioners, Families who have cultural or lineal connections to Mauna Kea, and NHOs feel they were not adequately or regularly consulted and/or informed about actions taking place on Mauna Kea.

Failure to timely implement certain MAs

OMKM did not complete many of the actions until recently. The HAR related to Mauna Kea was only approved in January 2020. Likewise, the decommissioning process of two telescopes did not begin until 2019. This lack of progress in decommissioning has diminished the public trust in OMKM’s management of Mauna Kea.

OMKM’s updates do not include metrics to evaluate progress towards achieving the desired outcomes

Plan 7.4.2 requires OMKM to “conduct regular updates of the CMP that reflect outcomes of the evaluation process, and that incorporates new information about the resources.” The annual reports to BLNR update the status of the plans’ actions. It does not address progress made toward achieving the Desired Outcome of the MCP. Evaluation of Desired Outcomes could have led to identifying metrics to track outcomes and improve actions.

CONCLUSION

The purpose of the independent evaluation was to, (1) evaluate the effectiveness of UH, and specifically OMKM's implementation of the MCPs, and (2) evaluate UH's efficiency and the governance structure in managing the cultural and natural resources within the UH Management Areas under the CMP. UH's self-assessment and many of the public comments which included members of the Native Hawaiian community and government agencies, have acknowledged that OMKM has implemented most of the 103 MAs within the MCPs. Many have commented that OMKM has effectively implemented many of the MAs that have resulted in protecting and preserving the cultural and natural resources within the state conservation lands.

However, in the areas of untimely adoption of the administrative rules, cultural resources, and education and community outreach, especially with the Native Hawaiian stakeholders, the efforts by OMKM have been ineffective to achieve the desired outcome. The desired outcome is to increase understanding and appreciation of Native Hawaiian history and cultural practices related to Mauna Kea to ensure that these practices are protected and respected. While there are Native Hawaiians who believe OMKM's actions have been respectful of the Hawaiian culture, the greater sentiment was a deep feeling of disrespect by OMKM's actions in managing Mauna Kea, as well as UH's action in pursuing telescope development over protecting the resources.

With respect to the efficiency of UH's governance structure in managing the state conservation lands at Mauna Kea, the UH BOR appears to be internally addressing this issue through their Resolution 19-03. They have taken steps towards developing a reorganization and restructuring plan that would consider an alternative governance and management mechanisms to improve operations and management to make it more efficient, effective, and transparent.

In conclusion, UH, and specifically OMKM, has implemented most of the CMP MAs, and in many cases, effectively implemented them to achieve the desired outcomes of protecting the resources. Unfortunately, the MA related to cultural resources that was designed to respect the Hawaiian cultural practices and resources, and MA related to education and outreach that was intended to restore trust between UH and the Native Hawaiian community have not been effectively implemented. Management plans are created with the best of intentions; but ultimately, the proof is in the implementation.