

Garapan Conservation Action Plan Workshop Proceedings September 10-13, 2012



This workshop was supported by The Nature Conservancy under cooperative agreement award #NA09NOS4190173 from the National Oceanic and Atmospheric Administration's (NOAA) Coral Reef Conservation Program, U.S. Department of Commerce. The statements, findings, conclusions, and recommendations are those of the author(s) and do not necessarily reflect the views of NOAA, the NOAA Coral Reef Conservation Program, or the U.S. Department of Commerce.

Table of Contents

Executive Summary.....	3
Introduction	4
Proposed Goals for the CAP Workshop	4
Expected Workshop Outputs	4
Timeline for Follow-up.....	5
Day 1: Monday, September 10, 2012	6
Introduction to CAP, Garapan and workshop.....	6
Vision statement.....	7
Focal conservation targets, threats and contributing factors	7
Day 2: Tuesday, September 11, 2012	10
Key ecological attributes for targets.....	10
Threat ratings.....	12
Days 3 and 4: Wednesday, Sept 12 and Thursday, Sept 13, 2012	14
Strategies, objectives and actions.....	14
Workplan.....	15
Capacity Analysis.....	18
Closing.....	18
Evaluation forms	19
Appendices.....	20
Appendix A: Attendance List.....	20
Appendix B: Conservation Action Plan process and model	21
Appendix C: Summary of relevant Garapan area plans	22

Executive Summary

The Garapan Conservation Action Plan workshop was held from September 10-13, 2012 at the Hafa Adai Hotel in Garapan. Participants included over 70 individuals representing over 20 groups, including local and federal government agencies, private businesses and contractors, non-profits and NMC faculty and students. The workshop was facilitated by The Nature Conservancy and CNMI Division of Environmental Quality staff under the conservation action plan framework used by The Nature Conservancy for watershed-based planning. The proceedings summarized in this document represent discussions had and decisions made from the four days regarding conservation priorities, environmental health and strategic actions to be undertaken within the Garapan Watershed. Comments may be submitted with regards to these proceedings until October 31, 2012. After this date, all comments and notes will be formulated into a comprehensive Conservation Action Plan which will be drafted by April 2013. All participating agencies will be asked to review the plan and sign on to the priorities described. An annual workplan will be created by participating groups and meetings will be scheduled each year to follow up on implementation of the workplan. Participation and input from all groups is necessary to move these interdisciplinary community issues forward and improve the environmental, cultural and economic health of the CNMI's most heavily populated watershed area.

The "watershed" is defined as all the land area where rainfall drains to common points in the lagoon. It includes everything from Takpochau Road west out into the lagoon, from Smiling Cove to the north down to Fishing Base and beyond in the south. Ten focal conservation targets were identified within the watershed as follows: fish, invertebrates, turtles, benthic habitats, beaches, water quality, historic sites, urban greenspace, upland forests, and mangroves/wetlands. Participants identified bacteria from human and animal waste, nutrients from upland farming, chemicals that get poured into storm drains, and sediments from unpaved roads or improper land clearing as some of the most important pollutants coming from land. Marine threats included poor water quality, directed hunting of turtles and the effects of fishing on the Garapan reefs. The group also voiced concerns about trash, invasive species and climate change effects, which will have impacts on both marine and land habitats.

The workshop also tasked participants with coming up with strategies to reduce threats and enhance or restore the health of the conservation targets. The six strategies that were brainstormed included conducting education and awareness programs, improving regulations and enforcement, improving engineering and infrastructure, implementing best management practices, continuing research and monitoring, and improving community stewardship and incentive programs. A variety of specific activities and action steps were listed under each of these strategies.

By the end of the workshop, all participants had an understanding of the scope of the Garapan watershed and the many focal habitats and species that were important to conserve, as well as the threats to their survival. All stakeholders agreed that the opportunity to network and collaborate on projects was one of the most valuable outcomes of the workshop. Over the next several years, participants will be working with community groups, businesses and others to make Garapan a more healthy, thriving and resilient place for both the community and the environment.

Introduction

The Garapan Conservation Action Plan workshop was held at the Hafa Adai Beach Hotel in Garapan, Saipan from September 10-13th, 2012. The four-day workshop was conducted in order to bring natural resource groups, private and public organizations and other stakeholders together to define focal conservation targets and the main threats to our most valued natural resources in the watershed area around Garapan, and to develop a strategic plan to address the threats and improve the health of the resources. Interagency and stakeholder cooperation is necessary for this project because the nature of watershed issues requires the integration of knowledge and efforts from people in a variety of different fields. Although four days was a long time commitment, the workshop experienced excellent attendance from many key stakeholders and produced a credible first draft of the Conservation Action Plan. The workshop was led by Kaity Mattos from DEQ and Steven Victor from The Nature Conservancy. This document summarizes the proceedings of the CAP and outlines timelines and plans for moving forward on conservation efforts within the Garapan watershed area.

Proposed Goals for the CAP Workshop

1. Introduce Garapan participants to the Conservation Action Planning (CAP) process
2. Complete a credible first iteration of a conservation action plan, including targets and target viability assessment, threats and threat ratings, conceptual diagrams, results chains, objectives, strategies and strategic actions/activities
3. Define follow-up steps to begin implementation of the conservation action plan

Expected Workshop Outputs

1. Vision for the Garapan Watershed Area
2. List of focal conservation targets, including an assessment of their viability, for Garapan natural (and cultural) resources
3. Analysis of key ecological attributes, measurements and monitoring plans for assessing target health
4. List and ratings of critical threats and contributing factors affecting the focal targets
5. List of strategies for decreasing threats and improving targets
6. Several broad and detailed results chains indicating theory of implementation for strategies
7. Preliminary list of SMART objectives related to strategies, threats, contributing factors or targets
8. Identification of preliminary strategic actions, points-of-contact and timelines for implementing key strategies
9. Capacity analysis of team readiness to implement this conservation action plan
10. Identification of next steps for implementing CAP and individual strategies

Timeline for Follow-up

DATE	TASK/ACTIVITY	RESPONSE/FEEDBACK EXPECTED FROM PARTNERS	DEADLINE FOR RESPONSE
Monday, October 1, 2012	Proceedings report released to workshop participants and partners who were absent (summary of workshop)	Partners provide feedback on proceedings, include ideas that were left out and review for technical errors. Partners may request follow-up meetings to discuss proceedings in more detail, especially if they were absent from the workshop	Friday, November 2, 2012
Starting Monday, October 1, 2012	Evaluation of Key Ecological Attributes and threat ratings	Partners provide additional data that was not available at the workshop to improve reliability of target and threat statuses (e.g. target health)	Monday, January 14, 2013
Starting Monday, October 1, 2012	Follow-up meetings with partners based on workshop outputs	Partners meet with Kaity Mattos and other Garapan stakeholders to provide feedback and additional information on CAP outputs and projects	Friday, February 1, 2013
Wednesday, November 14, 2012	Watershed Working Group meeting	Partners follow-up on CAP projects at quarterly WWG meetings	Quarterly, Nov, Feb, May, Aug)
Friday, March 29, 2013	Draft Garapan Conservation Action Plan released to partners for comment	Partners respond with comments and corrections on draft	Monday, April 29, 2013
Friday, May 31, 2013	Final Garapan Conservation Action Plan released for partner signatures	Partners will sign on to final Conservation Action Plan	Friday, June 28, 2012
September 2012	Meetings and project implementation	Partners begin collaborating and implementing projects defined in CAP workshop	September 2013
September 2013	1-year CAP workplan evaluation meeting	CAP partners will meet to evaluate initial year of implementation and formulate workplan for following year	
Annually, September	Workplan evaluation meetings	Partners meet to evaluate previous year's implementation and formulate workplan for following year	
Every 2-5 years, to be determined	Conservation Action Plan workshop and review	Stakeholders meet to reevaluate CAP priorities, targets and threats and update plan	

Day 1: Monday, September 10, 2012

Introduction to CAP, Garapan and workshop

The workshop began with the welcoming and introduction of all participants, whose names and affiliations are described in the attendance list, Appendix A. The Conservation Action Plan (CAP) process was then described by Steven Victor, a representative from The Nature Conservancy's Pacific Island office who specializes in implementing CAPs. The process is represented by four major steps which work together to form a cyclical analysis of conservation planning. The cycle starts with defining the project, which includes defining the people as well as the project scope and focal targets. Then, the project team would develop strategies and measures by examining target viability, rating critical threats to the focal targets, performing a situation analysis, and defining objective and actions and measures to be performed and implemented. These two steps were performed during the four day workshop and are to be followed by the final steps of implementing the strategies and measures, then using the results to adapt and improve before beginning the process again. The process helps groups to focus on certain conservation aims, threats and strategies by engaging key stakeholders and team members to achieve desired outcomes, measure their achievements and reevaluate and continue their progress. See appendix B for a diagram of the CAP process.

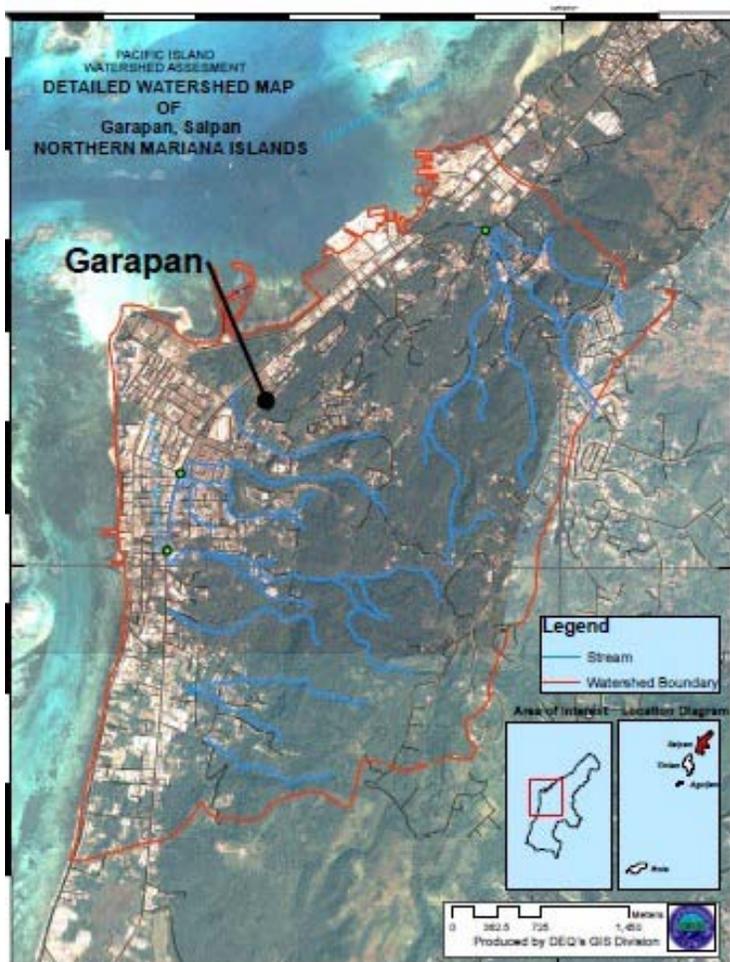


Figure 1: The red outlines the West Takpochau Watershed. Stakeholders were asked to focus on the central "Garapan area" sub-watershed for the purpose of this workshop.

Participants then heard from Kaitlin Mattos, Watershed Coordinator at the Division of Environmental Quality on why Garapan was selected as a priority watershed area for the CAP process. Garapan is the third watershed in the CNMI to have a CAP completed, behind Laolao Bay in 2008 and Talakhaya (Rota) in 2010. Garapan was chosen as a high priority area because it is the most densely populated watershed in the CNMI, and it is the center for tourism, commerce, and recreation with great assets for the community such as American Memorial Park and some of the beaches most heavily used by residents and tourists. Severe environmental problems also exist in the Garapan area, such as polluted stormwater, nutrification and uncontrolled algal growth in the lagoon, and improper disposal of trash. Although a variety of projects and plans have already been created for the area

(see Appendix C), the CAP process hopes to combine these efforts and provide a unified direction for the future development of projects and use of funding towards common goals. The focus area for the Garapan CAP was defined as approximately Smiling Cove to the north to Fishing Base in the south, and from Takpochau Rd in the east to the reef-line in the west. Stakeholders were told that these boundaries were not firm however, and projects could address surrounding areas or could be broader than just this area. Garapan village is actually part of the West Takpochau watershed which represents a much larger area. This CAP was meant to focus on the Garapan subsection of the larger watershed area, known as the West Takpochau CENTRAL sub-watershed.

The outputs from the CAP process were enumerated as the CAP document with appendices to be updated every 2-5 years, and a strategic workplan to be reviewed and updated every 1-2 years. Outputs from the 4-day workshop were a vision statement, list of focal conservation targets, assessment of target health, a prioritized list of critical threats, strategies for decreasing threats, a preliminary action plan, capacity analysis and defined follow-up steps. Follow-up steps mentioned on day one included further meetings with individual stakeholders, implementation of programs, identification of funding, and CAP workplan and CAP document updates on the previously mentioned timelines.

Vision statement

Participants were asked to brainstorm elements of a vision statement by discussing what they valued in the Garapan area and what they hoped the area would look like under ideal circumstances. All ideas were listed on flip charts and a team of four participants volunteered to meet during the lunch break to draft the ideas into a vision statement. Ideas brainstormed included reflections on tourism, businesses, community, beaches, parks, human health, natural resources, cleanliness, culture, and aesthetic beauty. The vision statement drafted and agreed upon by all participants is:

The Garapan watershed is the CNMI's "Hafa Adai" and "Tirow" to the world. Garapan is the convergence of our economic, natural and cultural resources. It provides our community with safe and healthy resources to engage in and share with our visitors. It is thriving and resilient from ridge to reef.

Focal conservation targets, threats and contributing factors

Participants were led in a group brainstorming session to determine the focal conservation targets, defined as "ecological systems, natural communities or species that collectively represent the biodiversity within the project area that you are interested in conserving." With the help of Kaitlin Mattos and Steven Victor, the facilitators, participants were guided in determining whether certain targets should be lumped together or split apart and what counted as a primary conservation target as opposed to a secondary non-natural resource target that would also benefit from CAP implementation. The group came to a consensus on ten focal conservation targets (in no particular order):

1. Upland forests
2. Urban greenspace
3. Wetlands and mangroves
4. Water (quality)
5. Beaches
6. Turtles
7. Fish
8. Invertebrates
9. Benthic habitat
10. Historical sites

Historical sites were the only target indirectly linked to natural resources; however, participants thought it was important to include cultural and historical considerations when talking about resources needing protection. The ten main targets were linked to secondary targets which were determined to be tangential to the CAP process at this time. The secondary targets were ecosystems (in general), tourism, human health, and good communities. It was discussed that these secondary targets would likely be improved by strategies that affected the main targets.

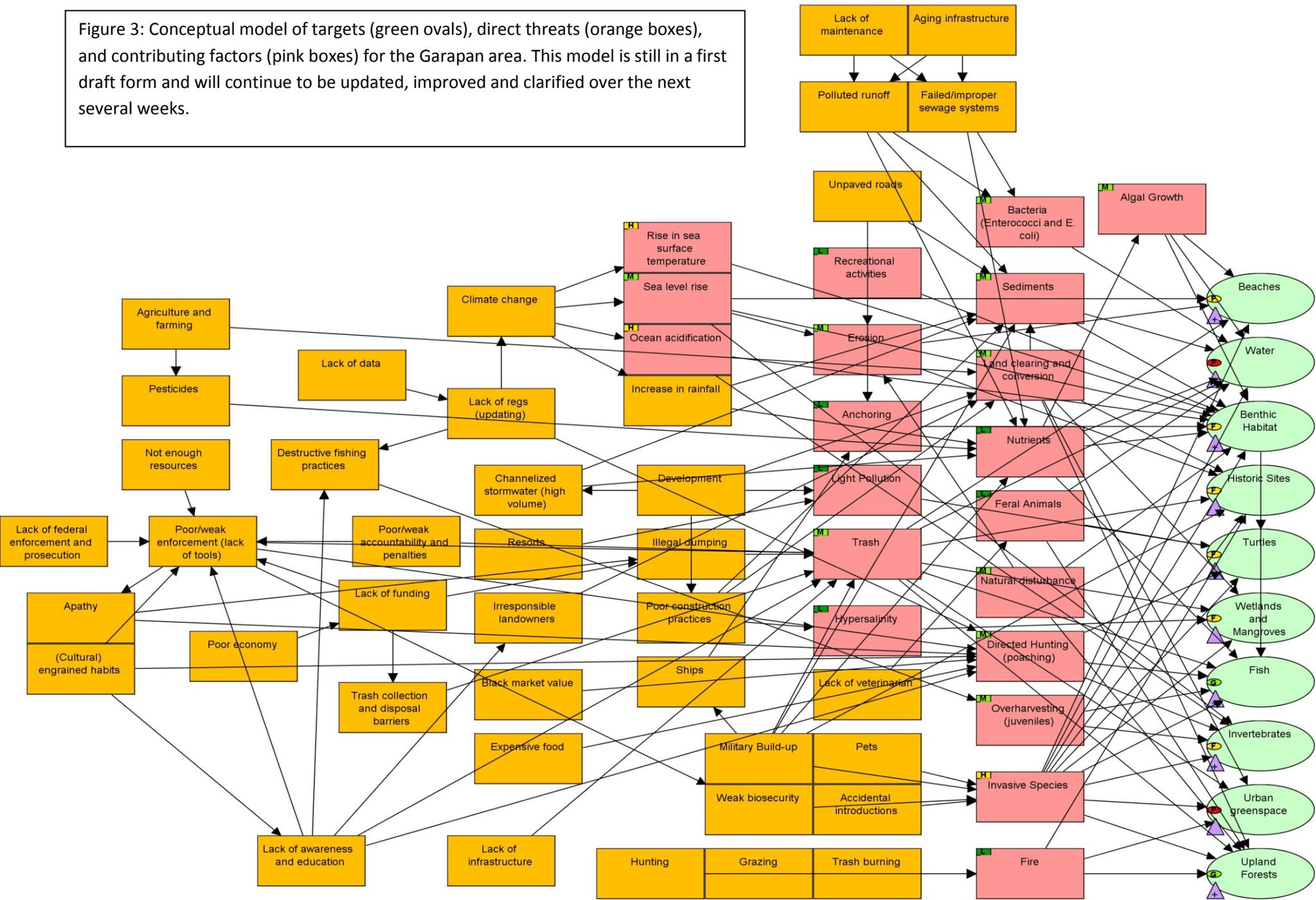
Participants then created a conceptual model by brainstorming things within the watershed that were directly threatening to the focal targets and the contributing factors to these threats. For example, sediment was listed as a direct threat to benthic habitat, and unpaved roads and poor construction practices were listed as factors that contributed to sediment on reefs. Targets, threats and contributing factors were listed on different colored index cards and were linked together into a diagram at the front of the room with lines drawn between related terms. This diagram was later refined into a conceptual model using the CAP software Miradi which was used as a guide for the rest of the workshop.



The main direct threats that were listed included (in no particular order):

1. Sea level rise (due to climate change)
2. Ocean acidification (due to climate change)
3. Rise in sea surface temperature (due to climate change)
4. Natural disturbances (typhoons, natural disasters)
5. Anchoring
6. Recreational activities
7. Overharvesting of marine species
8. Directed hunting (poaching)
9. Hypersaline discharge into wetlands
10. Algal growth
11. Nutrients
12. Sediments
13. Bacteria (*Enterococci* and *E. coli*)
14. Erosion
15. Land clearing and conversion
16. Fire
17. Feral animals (cats, dogs, pigs)
18. Invasive species (marine, rats, plants)
19. Trash
20. Light pollution

Figure 3: Conceptual model of targets (green ovals), direct threats (orange boxes), and contributing factors (pink boxes) for the Garapan area. This model is still in a first draft form and will continue to be updated, improved and clarified over the next several weeks.



Day 2: Tuesday, September 11, 2012

Participants reconvened on the second day of the workshop to further discuss targets and threats. Day 2 was directed specifically towards resource management organizations and agencies and participants were asked to bring data that provides more information about the targets and threats defined on day 1. However, lack of time and access to concrete data limited the discussions on Tuesday. Follow-up conversations with managers, scientists and specialists will better inform the rankings determined on day 2.

Key ecological attributes for targets

In the morning, resource specialists were guided through the process of choosing metrics for measuring the health and status improvements or declines of the chosen focal conservation targets. Viability was assessed to assist in developing good objectives and focused strategies, to guide the monitoring protocol and measures of success, and to identify knowledge gaps. Viability assessment consisted of three steps: defining key ecological attributes (KEAs), determining indicators for the attributes, and assigning values for the indicators and for the target status as a whole.

Key Ecological Attributes are aspects of the conservation target that clearly define or characterize the target and determine its distribution and variation over space and time. They are characteristics of the target that, if eliminated or altered, would result in the demise of the target or would shift it into something quite different. KEAs should be factors that are critical for long-term viability and are likely to be affected by human activities. Indicators are measurable aspects of the KEAs that inform the health or status of the target. Indicators should strongly relate to the status of the KEA, be efficient and affordable to measure and potentially provide an early warning to serious stress. Indicators were to be divided into categories of POOR, FAIR, GOOD or VERY GOOD, whose criteria would be defined by specialists in the region. Specialists would also help define the current status and the desired future status of each indicator for each KEA for each target. Participants were focused in on indicators that were currently being measured so that each indicator would have baseline data and an existing method of collecting future data to better inform the conservation plan.

Participants were divided into land- and marine-based target groups. Key ecological attributes, indicators and statuses for each target are listed below in the following format:

TARGET		OVERALL STATUS
➤ Key ecological attribute	▪ Indicator	Status
➤ Key ecological attribute	▪ Indicator	Status
	▪ Indicator	Status

All statuses are estimates based on limited data available at the workshop. Follow-up meetings with data managers will lead to more accurate estimates of current and desired future statuses, numeric definitions for the four statuses (poor, fair, good, very good), and overall viability of all targets.

Table 1: Target Viability

Targets and KEAs	Indicators	STATUS
Upland forests		GOOD
➤ Vegetation cover	▪ % canopy cover of limestone forest	Good
➤ Presence of key species	▪ Abundance of native birds	Good
Urban greenspace		POOR
➤ Vegetation cover	▪ % of green coverage area in Garapan (village)	Poor
Wetlands and mangroves		FAIR
➤ Vegetation cover	▪ % of wetland/mangrove coverage area	Fair
Water (quality)		POOR
➤ Lagoon water quality	▪ Presence of <i>Enterococci</i>	Poor
	▪ Concentration of nutrients	Poor
	▪ Total suspended solids	Poor
➤ Surface water (stormwater) quality	▪ Presence of <i>E. coli</i>	Poor
	▪ Concentration of nutrients	Poor
	▪ Total suspended solids	Poor
	▪ Volume	Poor
Beaches		FAIR
➤ Turtle nesting	▪ Number of nests	Poor
➤ Shoreline profile	▪ Rate of change at critical points	Fair
➤ Aesthetic beauty	▪ Visual survey of trash	Fair
	▪ Visual survey of algae	Fair
Turtles		FAIR
➤ Population size	▪ # of in-water captures	Fair
➤ Size class distribution	▪ Ratio of adults/sub-adults to juveniles	Fair
Fish		GOOD
➤ Abundance of key species	▪ Mafuti (<i>Harak</i>) biomass	Good
	▪ Cigar wrasse biomass	Good
➤ Biodiversity	▪ Species richness	Fair
Invertebrates		FAIR
➤ Presence of key species	▪ Water quality indicator species	TBD
	▪ Abundance of edible urchins	Poor
	▪ Sea cucumber density	Good
	▪ Grazing urchins	Poor
➤ Biodiversity	▪ Species richness	Fair
➤ Population structure of key species	▪ Sea cucumber size class distribution	Good
	▪ Trochus size class distribution	Fair
Benthic habitat		FAIR
➤ Size class distribution	▪ Coral colony size class distribution	Fair
➤ Substrate quality	▪ % cover of reef-accreting substrate	Poor
	▪ % cover of seagrass	Poor
➤ Presence of key species	▪ Threatened/endangered corals	Good
	▪ % cover of seagrass	Poor
Historical sites	▪ Site integrity	FAIR

Threat ratings

In the afternoon, participants continued to work in land- and marine-based groups to evaluate each of the direct threats as they related to the targets. The land group evaluated threats linked to the upland forests, urban greenspace, wetlands and mangroves, water, beaches and historic site targets. The marine group evaluated the threats linked to fish, turtles, benthic habitats and invertebrates. Threats were evaluated based on three criteria: scope, severity and irreversibility:

Scope: defined spatially as the proportion of the target that can reasonably be expected to be affected by the threat within ten years given the continuation of current circumstances and trends. For ecosystems and ecological communities, it is measured as the proportion of the target's occurrence. For species, it is measured as the proportion of the target's population.

Severity: within the scope, the level of damage to the target from the threat that can reasonably be expected given the continuation of current circumstances and trends. For ecosystems and ecological communities, it is typically measured as the degree of destruction or degradation of the target within the scope. For species, it is usually measured as the degree of reduction of the target population within the scope.

Irreversibility (permanence): the degree to which the effects of a threat can be reversed and the target affected by the threat restored.

Each criterion was evaluated on a four-point scale of low, medium, high and very high. The definition of each level was provided by the Miradi software to the group. Decisions were made by group consensus based on the best available knowledge and may need to be reevaluated with more data. Responses were plugged into the software which determined an average rating for each threat-target combination based on an internal algorithm. These averages were then combined across each threat and across each target to provide summary threat ratings, summary target ratings, and an overall project rating.

These ratings are relative and not the sole determination of the importance of a threat. For example, the internal algorithm gives more weight to highly rated irreversibility than to high scope or severity. Therefore, a threat from climate change, which is highly irreversibly (very permanent), would be ranked higher than a threat that is easily reversible, such as trash. Additionally, overall ratings across a target or threat depend not only on the average of the individual ratings, but also on how many threats affect a target, or how many targets are affected by a threat. For example, "bacteria" is only a direct threat to water quality and no other targets. Although "bacteria" is rated "high" for affecting water, its overall rating is "medium". Therefore, participants were urged to consider more than just the output generated by Miradi when determining strategies and a workplan to tackle the many threats facing the watershed.

The Garapan watershed area CAP was given an overall priority rating of "high", indicating that the threats are severe and the targets are significant enough to warrant extensive action and resources to be allocated to the region.

Table 2: Threat Ratings

Threats/Targets	Fish	Wetlands and mangroves	Beaches	Urban greenspace	Invertebrates	Benthic habitat	Upland forests	Water	Turtles	Historic Sites	SUMMARY TARGET RATINGS
Sea level rise	Med	-	High	-	Med	Med	-	-	Med	Low	MEDIUM
Ocean acidification	Med	-	-	-	Med	Med	-	-	Very high	-	HIGH
Rise in sea surface temperature	High	-	-	-	-	High	-	-	High	-	HIGH
Anchoring	Low	-	-	-	-	Low	-	-	Low	-	LOW
Natural disturbance	Med	-	Low	-	-	Med	Low	-	Med	Med	MEDIUM
Recreational activities	Low	-	-	-	-	Low	-	-	Low	-	LOW
Overharvesting	High	-	-	-	Low	-	-	-	-	-	MEDIUM
Directed hunting	Low	-	-	-	Med	-	-	-	High	-	MEDIUM
Hyper-saline discharge	-	Low	-	-	-	-	-	-	-	-	LOW
Algal growth	Med	-	-	-	-	Med	-	-	Med	-	MEDIUM
Nutrients	Low	-	-	-	-	Low	-	Med	Low	-	LOW
Sediments	Low	-	-	-	-	Med	-	Med	Med	-	MEDIUM
Bacteria	-	-	-	-	-	-	-	High	-	-	MEDIUM
Erosion	-	-	High	-	-	-	-	-	-	-	MEDIUM
Land clearing and conversion	Low	Med	-	High	-	Low	Med	Med	Low	Low	MEDIUM
Fire	-	-	-	Low	-	-	Low	-	-	Low	LOW
Feral animals	-	-	-	-	-	-	Med	Low	Low	-	LOW
Invasive species	High	High	Med	High	Med	Med	Med	-	Low	Low	HIGH
Trash	-	Low	Med	High	-	-	Low	Low	-	Low	MEDIUM
Light pollution	-	-	-	-	-	-	-	-	Low	-	LOW
SUMMARY TARGET RATINGS	HIGH	MEDIUM	HIGH	HIGH	MEDIUM	HIGH	MEDIUM	MEDIUM	VERY HIGH	LOW	HIGH

Days 3 and 4: Wednesday, Sept 12 and Thursday, Sept 13, 2012

Strategies, objectives and actions

On the third day, stakeholders were directed towards the second step of the CAP process, developing strategies and measures. The aim of this session was to develop results chains, which are devices that help clarify assumption about how conservation strategies contribute to reducing threats and achieving the conservation of specific targets, for example, by defining how we think a project will contribute to reducing a threat and conserving a target. Once again, the group was split into land- and marine- based groups which facilitated coming up with more specific strategies and results chains depending on the scenario.

Land and marine groups focused on the medium and high priority threats for results chains: directed hunting and poaching, land clearing and conversion, trash, invasive and feral species, nutrients, sediments, bacteria, erosion and overharvesting. Climate change effects (sea level rise, ocean acidification and rise in sea surface temperature) were not discussed at this time, but were tabled for discussion by the Climate Change Working Group (conducted by CRM).

The threats that were discussed yielded strategy suggestions that can be grouped into six categories: education, regulations and enforcement, engineering and infrastructure, best management practices, research and monitoring, and community stewardship and incentive programs. After brainstorming strategies, participants were tasked with defining objectives to measure success of the strategy, intermediate steps and threat reduction. Objectives are written to be specific, measureable, attainable, relevant and time-bound (SMART) ways to achieve pieces of the desired results. The objectives were written to the best of the ability of participants at the workshop, but included some information gaps where specific of knowledge was missing. The objectives brainstormed at the workshop only represent a few of the steps of the results chains as well, and there is room for more objectives to be filled in.

For example, a results chain identifies “education programs” as a strategy to help people understand why litter is bad, which would lead to fewer people littering, a reduction in trash and eventually an improvement in the condition of our beaches, waters and other targets. An objective may aim to have the education program implemented in 90% of 4th grade classes on Saipan by 2015. However, this objective measures only the implementation of the strategy. Another objective could aim to have 10% more trash-free beaches each year starting in 2013. This second objective measures the reduction of the threat and the health of the target “beaches”.

On the fourth and final day, marine and land groups discussed the strategies in more detail and identified action steps to achieve the objectives and implement the recommended programs for high and medium priority threats. The combined strategies, objectives and actions/activities are presented below in the initial draft of the workplan from the CAP. Groups or participants who are taking responsibility for different steps are also indicated in italics. This workplan is likely to be added to or cut down depending on the input from various stakeholders over the next several months, but the initial ideas are important to include here.

Workplan

- ❖ Strategy: Education and Outreach
 - Objectives
 - Complete survey of educational gaps and analyze results by 2014
 - *Jihan Buniag (DEQ) and Kodep Uludong (MINA) complete survey, Steven Johnson (DEQ) analyze results*
 - Implement three targeted awareness campaigns by 2018 (*work with RARE campaigns*)
 - Strategy Details
 - Identify needs and gaps
 - Develop targeted campaigns
 - Topic suggestions
 - Overfishing, poaching/targeted hunting (fish, turtles, inverts)
 - Benthic habitat – ridge to reef concept
 - Reducing erosion (land practices): use Jihan’s Laolao campaign, make sure people understand how to get permits and why, target contractors and equipment rental places as bottle-necks for explaining permit process
 - Invasive/feral species
 - Trash disposal, reduce, reuse, recycle
 - Integration of land uses
 - Permitting process meetings to teach property owners about BMPs (*DFW, DEQ, HPO, private businesses*)
 - Voluntary workshops to teach businesses about BMPs (*Dept of Commerce – SBDC*)
 - Recycling in schools: *CRM, Whispering Palms, Brilliant Star, GCA*
 - No Need Bag campaign (*CRM, MINA, ENRO*)
 - Know Your Watershed: repeat 2003 successful campaign, adopt-a-block (*CUC, DPW, DEQ, CRM, Forestry, SWCD, NRCS*)
 - Tour guide certification program (*NMC, MVA, other help develop curriculum*)

- ❖ Strategy: Regulations and Enforcement
 - Objectives
 - Complete external capacity review of enforcement (*NOAA CRCP*) by 2015
 - Improve prosecutorial success for violations: increase environmental infraction cases heard by 20% each year starting in 2018
 - Reduction in land clearing violations seen by permitting agencies w/in the watershed by 2016
 - Develop one management strategy for herbivorous fish in the Garapan watershed by 2018
 - Less loss of upland forest area each year
 - Strategy Details
 - Improve enforcement capacity
 - Review enforcement workplans (*PIMPAC, DEQ, DFW, NOAA, CRM*) to identify improvements, updates and needs (training, funding, personnel)
 - Provide training opportunities
 - Focus areas for the Garapan watershed area
 - ◆ Poaching, overfishing, directed hunting
 - ◆ Littering/dumping
 - ◆ Land clearing
 - ◆ Sewer system connections

- Review hearing process for each agency, identify and fill gaps, monitor change. Fill post of AAG for environmental resource agencies (*DEQ/CRM/DLNR directors, NOAA, AG*)
 - Review, update or introduce regulations and legislation
 - Erosion control
 - Biosecurity plan (marine species)
 - Property maintenance
 - Zoning requirements for setbacks
 - Littering fines
 - Mitigation for land clearing
 - Set herbivorous fish biomass targets, evaluate management options to benefit herbivores and formalize most valuable option (*DFW*)
 - Include Forestry inspection in permitting process (*DEQ, Forestry*)
 - Land-based invasive species control (*Quarantine, NMC Crees, Forestry, Zoo, Nurseries*), find out rules and encourage enforcement to stop spread
- ❖ Engineering and Infrastructure
- Objectives
 - CUC sewer connection funds expended by 2015 (*CUC, DEQ*)
 - Decrease in number of “red flags” on beaches
 - Interagency group developed by 2013 to collaborate on unpaved road projects
 - Strategy Details
 - Unpaved roads
 - Navy pre-positioned ship collaboration (*John Riegel – CUC, DPW*)
 - Interagency “Unpaved Roads Working Group” – *Mayor’s Office, DPW, Legislature, MVA*
 - Storm drains
 - Maintain existing drainages (*DPW, DEQ, CRM*)
 - Assess individual property stormwater retention capacity and explore retrofits (*DEQ*)
 - Sewer systems (*CUC, DEQ, DPH-BEH, Sanitation*)
 - Identify problem areas and sewage system types
 - Connect eligible properties to sewer lines, investigate options for failing systems
- ❖ BMPs
- Objectives
 - Decrease in feral cats and dogs in watershed area starting 2013
 - All public trash bins maintained by 2015
 - Strategy Details
 - Water quality
 - proper farming/agriculture techniques
 - proper disposal of contaminants
 - Water volume improvements
 - swales, ponding basins, rain gardens, increase in permeable area
 - Army Corps ponding basins, search for funding sources for construction (*CRM*)
 - Directed removal/reduction of invasive species
 - Trapping, incentive for capture (*Mayor’s Office, DFW, DLNR – vet, Parks and Rec*)
 - Rats (*DLNR, Public Health BEH, NMC-Crees*)
 - Spay/neuter program: *MRC (private consultant), stateside partners*

- Plants: scarlet gourd, chain of love, devil's gut vine (*DLNR, Forestry, CUC, NMC Crees, UoG Extension service*)
 - Habitat removal for invasive/feral animals (e.g. cars, trash piles, abandoned buildings, citations for having habitat, *Mayor's Office*)
 - Rehabilitation and restoration of degraded historic sites and natural areas
 - More trash bins
 - Emptying existing bins on weekends, getting lids (*Mayor's Office, CRM, MINA, DLNR Parks and Rec?*)
 - NOAA Marine debris grant (*CRM, ENRO, DEQ, MINA*)
 - Cash for Trash (*MVA, Chamber of Commerce*)
 - Recycling infrastructure
 - Reuse trash/recycle materials for road construction (*DPW*)
 - Blue Starfish: identify businesses for BMPs, promote businesses through MVA (*DEQ, MVA*)
 - Agriculture/farming: enroll upland agriculture landowners into EQIP program (*NRCS*)
 - *CIP and Zoning*: Revitalization project, parking (more, permeable, stormwater retention areas), building/aesthetics rules

- ❖ Research and Monitoring
 - Objectives
 - All high priority water quality problem areas identified by 2016
 - Climate change adaptation plan finished in 2016 and data used for informing regulations (e.g. setbacks)
 - Strategy Details
 - Identify and eliminate gaps in scientific data for
 - Fisheries management (*DFW, NOAA*)
 - Marine monitoring (*DEQ, CRM*)
 - Target education programs to info gaps
 - Understand and improve regulations
 - Identify water quality problem/high priority areas (*DEQ*)
 - Understand algae preference by herbivorous fish (*DEQ/CRM MMT and DFW*)
 - Climate change adaptation plan (*CRM*)
 - Wetlands and mangrove evaluation (*CRM, AMP, UoG, DLNR, DEQ*)
 - Understand types and coverage of forest areas (*Forestry, USFS*)

- ❖ Community Stewardship and Incentive Programs
 - Objectives
 - Increase in incorporation of green landscapes into urban properties
 - Increase in number of participants in stewardship programs each year
 - Strategy Details
 - Target groups: *Neighborhood Watch, Village Revitalization, Saipan Municipal Council, Mayor's Office, Homeowner's Associations*
 - Tree plantings, free trees to private, public, commercial groups (*Forestry, Mayor's Office*)
 - Farming/agriculture programs
 - Urban greenspace/greenscaping projects
 - Tree pruning workshop Nov 6 (*Forestry*)
 - Building and property rehabilitation

- Trash pick-up programs
 - Cash for Trash (*MVA, Chamber of Commerce*)
 - Adopt-a-Beach, trash bag giveaways (*CRM*)
 - Adopt-a-Highway (*DPW*)
 - *PDM Promoters*
 - *DEQ* monthly clean-ups
- Recycle/reuse programs on island
- Commercial recognition programs: Blue starfish (*DEQ*), green properties (*Forestry*), subsidized recycling bins, recycling competitions (*MINA*)
- Private property recognition: Green areas (*Mayor's Office*), adopted clean-up areas, recycling bin hand-out (*DPW Energy*)
- Free Trash Day/Freecycling (*Mayor's Office*)
- Support reuse/recycle businesses and salvage yards
- iRecycle – recycling program from Guam
- Incentives to improve aesthetics – *Chamber of Commerce, Zoning*

Capacity Analysis

Participants went through a capacity analysis led by Steven Victor of TNC to evaluate people, internal resources and external resources available for implementing the CAP. Human resources scored “medium” because regular assistance was not assessed to be available from the multidisciplinary team in many important programmatic areas. Internal resources also received a score of “medium” because funding has been secured or pledged for at least one year, but planning for long-term support has not been secured yet. External resources scored “high” because the project area was assessed to have both the social/legal framework for conservation and the community and constituency support. All participants identified that support was available, but that the difficulty was to get the community to engage and participate in making positive changes happen within the watershed. Overall, the project resources received a rank of “medium”.

Closing

In closing, participants discussed how to incorporate existing plans and projects into the CAP. The Garapan CAP is a living document that will continuously be updated and is intended to be a comprehensive natural resource management plan for the entire watershed area. Therefore, existing projects, studies and plans should be included as part of the strategic workplan and their sponsoring organizations listed as partners for this process. For example, plans described in Appendix C should be accessible to Garapan stakeholders and project updates should be included in periodic and annual meetings to discuss the watershed area. All participants resolved to identify existing projects and plans within their agency/organization and notify the watershed coordinator so that they could be incorporated into the CAP. Additionally, partners agreed to have periodic communication and follow-up meetings with the coordinator in order to record progress, receive help and collaboration where needed, and push the CAP activities forward. There is no point in duplicating efforts or excluding from the plan projects that are already underway. Rather, the Garapan CAP will serve to bring together all of these projects and fill in missing holes with new strategies as brainstormed in the workplan.

Kaitlin Mattos, watershed coordinator at DEQ will be the point of contact for the Garapan CAP implementation and workplan. All participants and stakeholders are in contact with her and will schedule follow-up meetings as described by the timeline at the top of this document. At the end of the workshop, all participants agreed to this timeline. It is critical to have all stakeholders engaged in this process in order to make meaningful progress towards our goals. All parties are optimistic about implementing this plan, now we just have to make it happen!

Evaluation forms

All participants were asked to fill out a brief evaluation at the end of the workshop. Most agreed that four days was an appropriate amount of time to complete the activities for the CAP, but that it was difficult to commit to four days off of their regular work-load. Most participants said that the small group discussions and the participation of multiple agencies were the most useful parts of the workshop, while few identified any parts that should have been eliminated. Participants ranged from “neutral” to “very likely” when asked if their agencies would participate in implementing the CAP, however most were less confident that they personally would be involved in representing their agencies in the process. This suggests that the appropriate staff for implementing the CAP were not necessarily the ones who were able to attend the workshop. Hopefully as the process moves forward, the appropriate contacts are identified and all agencies participate in the workplans.

The majority of participants suggested that having other agencies commit human and funding resources to the CAP would encourage their agency to commit as well. This means that the CAP can only work well if ALL stakeholders are engaged. Finally, participants were asked what groups were missing from the workshop. Most named groups who were invited but were unable to attend. The groups listed include: Zoning, NRCS, HANMI, Marine Sports Association, Quarantine, more legislative representatives, lawyers, enforcement officers, CUC, businesses, Department of Public Health, HPO, DLNR – Parks and Rec and Animal Health, NMC – CREES, the Farmer’s Association, CIP, MINA and the municipal council.

Appendices

Appendix A: Attendance List

The following participants attended for at least one day of the workshop:

APASEEM – John Furey

CRM – Annie Agulto, Becky Skeele, Dave Benevete, Doris Chong, Nicole Schafer, Rose Pangelinan, Robbie Green

CUC – John Riegel

DEQ – Angel Palacios, Carlos Ketebengang, Clarissa Bearden, Derek Chambers, Fran Castro, Jihan Buniag, Joe Kaipat, John Fraser, John Iguel, Jose Quan, Manny Borja, Ryan Okano, Shelly Kremer, Steven Johnson, Kaitlin Mattos

DFW – Francis Buniag, Frank Villagomez, Mike Tenorio, Tammy Summers, Todd Miller, Tyler Willsey, Sean McDuff

DPL – Pat Rasa, Jude___

DPW – Sonya Dancoe, GERALYN Dela Cruz

Fisherman’s Association – Gene Weaver

DLNR Forestry – Ben Cepeda, Susana Deleon Guerrero

Legislative representative – Edmund Villagomez

Marianas Conservation – John Gourley

Mayor’s Office – Thomas Borja

MINA – Kodep Uludon, Jamie Fejeran

MVA – Perry Tenorio, Judy Torres

NMC – Alfred DeTorres, students: Severino Alforeza, Juan Iguel, Manny Tenorio, Shirley Tenorio, Marlyn Naputi, Julius Reyes, Christine Pamfilo

Micronesian Resources Conservation – Matthew Crane

NOAA – Dana Okano, Steve McKagan, Mike Trianni

NPS – Babara Alberti

NRCS – Kendal Hicks

PDM Promoters/Kinpachi restaurant – Alberto Ignacio, Jessie Camba

PMRI – Greg Moretti

SWCD – Ed Santos, Ike Cabrera

TNC – Steven Victor

TRL Consulting – Tim Lang

Appendix B: Conservation Action Plan process and model

Extended explanations of the CAP process are available. Contact Kaity Mattos at DEQ if you are interested.



Appendix C: Summary of relevant Garapan area plans

Plan/Project	Agency	Year	Summary
Saipan Lagoon Use Management Plan	CRM	1997	CRM guiding document; provides guidance for parks management, multiple use zoning, stormwater pollution control, resource concerns.
NPS 5-15 Year Plan	CRM DEQ	1999	Outlines NPS objectives through 2014, including restoring designated uses of all waterbodies. Mentions Garapan drainage improvements as top priority
Garapan Revitalization Project	CIP	2003	Describes projects to improve infrastructure around Coral Tree Ave and other areas that are at least partially funded
Garapan Water Quality Restoration Project	DEQ	2004	Conceptual design for building a stormwater treatment area on the old Samoan housing lot to improve water quality in the Fiesta Drainage – project has since been stopped
Managaha Management Plan	DFW	2005	Describes current conditions, multiple uses and management strategies for Managaha Marine Conservation Area
Conceptual Stormwater Management Plan for the Garapan II Drainage	DEQ	2005	Recommends watershed (surface water) sampling, major changes and BMPs for areas of stormwater concern; recommends soil stabilization (erosion control) as best cost effective management method.
Aquatic Ecosystem Restoration Study – Drainage designs	CRM, Army Corps	2006	Describes preliminary designs for possible sediment basins near China House, Gualo Rai and Quartermaster to contain stormwater before it reaches the lagoon
Garapan and Beach Road Revitalization Plan	Zoning	2007	Describes tourism vision for Garapan area and recommends short-, medium-, and long-term improvements to various pieces of infrastructure and natural resources
Garapan Tourism District Stormwater Conceptual Study	CIP	2010	Develops a list of prioritized stormwater improvements for three main Garapan drainages and alternatives
CNMI Statewide Assessment and Resource Strategy	DLNR Forestry	2010	Analysis of statewide forest resources and conditions with goals to protect and conserve forests and enhance public benefit from forest resources. Prioritizes upper Garapan watershed for vegetation work to decrease erosion