

Strategy Effectiveness Measures (SEM) Review Report for Talakhaya/Sabana Watershed

Prepared by The Nature Conservancy

Background

On April 10, 2012, a Strategy Effectiveness Measures (SEM) review was conducted for the Talakhaya/Sabana Conservation Action Plan. The purpose of the review was to determine whether Talakhaya/Sabana strategies as defined in the action plan are/will be effective in achieving desired outcomes for effective management and conservation of Talakhaya/Sabana watershed.

The Action plan was created through a 3 day workshop in April 2010 to solicit input from stakeholders (CNMI resource agencies) to define what are the key resources (both natural and cultural) that are important to conserve, protect, and or restore and the key threats affecting them. Following the workshop, there has been some revisions to the results chain. The intermediate results in the results chain were the basis for creating SMART objectives and strategic actions toward mitigating the priority threats (soil erosion, unintentionally set fires, and overharvesting of target species).

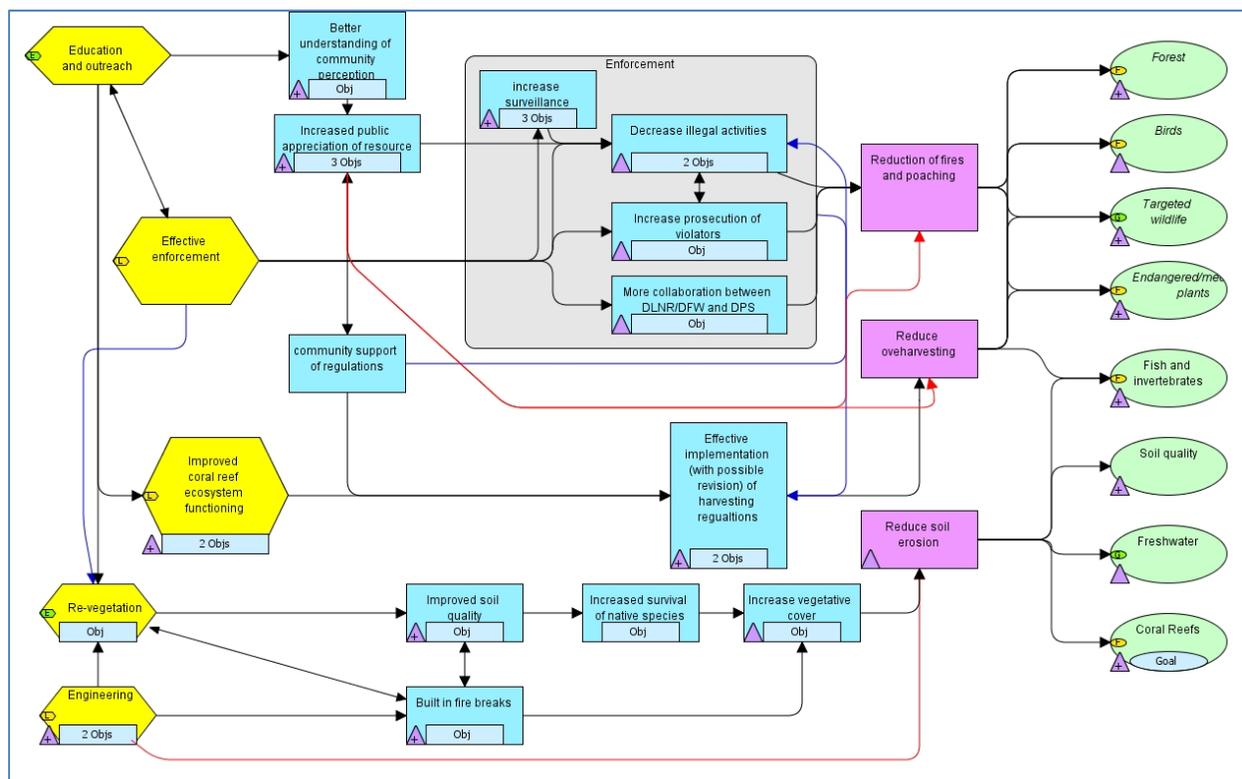


Figure 1. Results chain diagram showing key intermediate results that needs to be achieved toward mitigating priority threats to Talakhaya/Sabana Watershed, Rota.

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There are 3 main goals in the action plan associated with reducing the priority threats to the Talakhaya/Sabana Watershed: Goal 1: Reduction in soil erosion through re-vegetation of critically eroding areas and implementation of engineering actions that will reduce soil erosion in the watershed; Goal 2: Reduction of incidences of fire through increasing awareness on impact of fires on the watershed and creating effective enforcement measures; Goal 3: Reduction of overharvesting through informed decision making supported by scientific data.

Implementation Progress

While, the Conservation Action Plan has not formally been endorsed, Department of Environmental Quality (DEQ), the lead agency for implementation of the plan, is/will focus on the following objectives and action with a grant from NOAA Coral Reef Conservation Program (CRCP).

- Increase of re-vegetation program by 50% with goal of 30,000 seedlings; which would entail: **Hiring three full time staff and 3 seasonal staff to organize the Talakhaya watershed revitalization programs, including the revegetation, surveillance, and maintenance.**
- Conducting anti-burning education campaign; which entails achieving the following objective: **By 2013, have assessed the attitudes, behaviors, and knowledge of the Rota population regarding identified resources and intentionally set fires.** Specific action to be taken is to conduct 4th grade outreach.
- Hiring 2 seasonal field agents: **By 2012, have two seasonal part-time agents surveying that project area during peak burning season.** The main result intended for this objective is to , **have specific annual record of fires started and the extent of their damage, currently stated as Objective D4 in action plan.**

Other actions intended for implementation through NOAA internal funding mechanisms include:

- Expansion of Creel program to Rota
- Soil loss assessment to establish baseline

Identified next steps

- Finalize approval
- Shop plan for additional funding
- Work with partners to complete some of the shared objectives
- Complete actions that do not require funding

Strategy Effectiveness Measures Review

There are two types of conservation measures: (1) *Conservation Status Measures (CSMs)* address questions about the state or condition of biodiversity, threats, and management activities and (2) **Strategy Effectiveness Measures (SEMs)** focus on questions related to how well our strategies and actions are achieving their desired impacts. The focus of this review was to assess how well each objective and the actions as defined will lead toward achieving the stated intermediate results to mitigate/reduce the threats.

<u>Item</u>	<u>Description</u>		<u>Priority</u>
Objective A1	Increased Vegetative Cover	By 2015, revegetate all critically eroding areas in the watershed (defined as bare areas 15sq meters in size and above) using the NRCS Soils Conservation Plan. Indicator: number of plants that survive	High
Strategic Action A1a	Hire one fulltime and one seasonal employee to assist with the propagation of species and the annual planting season.		High
Strategic Action A1b	Hire three full time staff and 3 seasonal staff to organize the Talakhaya watershed revitalization programs, including the revegetation, surveillance, and maintenance.		Medium
Strategic Action A1b	Purchase materials and provide volunteer stipends for an annual mass planting event aimed at planting 40,000 seedlings annually in the project area.		High
Strategic Action A1c	Purchase two ATVs and trailers to improve the transportation of revegetation materials to the revegetation site.		Medium
Strategic Action A1d	Identify location for vetiver (<i>Chrysopogon zizanioides</i>) plantation on Rota, and plant seed crop of vetiver.		Medium
Strategic Action A1e	Expand DLNR nursery (or identify other source for seedlings) to accommodate at least 60,000 seedlings.		High
Strategic Action A1f	Conduct study evaluating native Rota flora for use in revegetation work.		Medium

Comments:

Since the re-vegetation project has been going on for six years, it is highly recommended that an assessment of the current re-vegetation approach be conducted to determine any changes to the approach that would increase survival rate of seedlings. From discussion, there was an agreement that vegetation cover is increasing and there is also a strong agreement that fire is the major threat to continued success of the re-vegetation effort.

Objective A2	Increased SCI	By 2015, see a positive Soil Conditioning Index (SCI) in Talakhaya revegetation area soils during annual assessments Indicator: Soil Conditioning Index	Medium
Strategic Action A2a	Establish MOU with NRCS to conduct SCI assessments annually in the watershed - or – train and outfit Rota DLNR staff with materials and knowledge to conduct these assessments on an annual basis.		Medium

Comments:

This objective is mean to improve soil quality; however, as stated the objective focus on monitoring the soil index and there are no specific activity that is directed to improve soil quality.

It is probably assumed that by improving vegetation cover this will increase soil quality but it is also recognized that soil quality will enhance plants survival rate and therefore, improving the quality of soil will lead to increased survival of plants seedlings that will lead to increased vegetative cover. There needs to be activity focused on improving soil quality.

Objective A3	Reduce soil loss	By 2015, reduce soil loss in Talakhaya highly eroding areas by 25% Indicator: Erosion rate	High
Strategic Action A3a	Establish methodologies, and purchase equipment if necessary, to assess the rate of soil loss off of the Talakhaya/Sabana watershed.		High
Strategic Action A3b	Train at least two DLNR Rota Staff and/or stakeholders to assess rate of soil loss using established methodology.		Medium
Strategic Action A3c	Explore the purchasing of equipment and training of staff or stakeholders to meet mulching recommendations laid out in the NRCS soil conservation plan.		Medium

Strategic Action A3d	Annually assess rate of soil loss in the watershed.		High
Strategic Action A3f	Re-evaluate reduction of soil loss goal (25%) based on on-the-ground measurements of total soil loss and what the reduction would mean for conservation targets downstream.		High
Comments:			
<p><i>Objective needs to be revised. This looks more like a monitoring indicator for improving vegetation cover; assessing effectiveness of vegetation cover would mean measuring erosion rate.</i></p> <p><i>Again, objective is meant to improve soil quality but most of the activities are centered around monitoring soil loss. There is one activity, i.e meeting mulching recommendations by NRCS that may be related to improving soil quality.</i></p>			
Objective A4	Increase survival of native species	By 2020, have created a soil environment in 25% of the revegetated areas where native species can be re-established.	High
	*see Strategic actions A1b and A2a		High
Comments:			
<p><i>This objective will be difficult to measure; intent here is to re-establish native species. It is believed that native species cannot be re-established unless soil quality is improved. As focused here, the objective is to improve soil quality where the intended result is re-establishment of native vegetation. One could put an indicator of soil quality and one has meet this objective but not the intended result of native species. It is suggested that objective be revised to: By 2020, at least 25% of re-vegetated area is covered by native species. Indicator: Native species coverage. Improving soil quality then become an action underr A2. SCI is just an indicator of soil quality.</i></p>			

Strategy B: Implement engineering actions that will decrease erosion in the watershed.

Table 4: Strategy B objectives

<u>Item</u>	<u>Description</u>		<u>Priority</u>
Objective B1	Evaluation of engineering alternatives	By 2013, produce an engineering design plan that if implemented would reduce soil erosion by an estimated 25% in the Talakhaya watershed.	Medium

Strategic Action B1a	Establish MOU with NRCS to produce an engineering design plan for the watershed - or – contract another firm to conduct said work.	High	
Strategic Action B1b	Conduct field survey of topography. (to be done by NRCS or contracted firm)	Medium	
Strategic Action B1c	Evaluate access road, including seeking the permission of the relevant property owners to make improvements on the road. (to be done by NRCS or contracted firm)	High	
Strategic Action B1d	Evaluate sediment basins. (to be done by NRCS or contracted firm)	Medium	
Strategic Action B1e	Evaluate hillside ditches. (to be done by NRCS or contracted firm)	Medium	
Strategic Action B1f	Evaluate trails, walkways, and staging areas (i.e. heavy use areas). (to be done by NRCS or contracted firm).	Medium	
Strategic Action B1g	Re-evaluate reduction of soil loss goal (25%) based on assessment of the engineering alternatives and their estimated reduction of sedimentation in the watershed.	High	
<p>Comments:</p> <p><i>This objective looks more like a strategic action under A3, which is to reduce soil erosion. Objective is not so much having a plan but reducing erosion and this plan could be just another action toward reducing erosion. Therefore, the 25% target under objective A3, could be reevaluated based on the amount of work that needs to be done under this.</i></p>			
Objective B2	Implementation of engineering alternatives	By 2015 have begun the process to install engineering alternatives outlined in the engineering design	Medium
Strategic Action B2a	Develop a methodology for implementing the engineering plan developed by NRCS or the contractor.		Medium
Strategic Action B2b	Prioritize engineering actions based on available manpower and materials against effectiveness for reducing erosion in the watershed		Medium
Strategic Action B2c	Begin installing high priority alternatives as possible.		Medium

Comments:			
<i>Again, this objective could simply be a strategic action under A3</i>			
Objective B3	Decreased amount of vegetation affected by grassland fires	By 2015, have installed 1000ft of firebreak into the highly eroding areas of Talakhaya (in accordance with NRCS Soil Conservation Plan).	Medium
Strategic Action B3a	Evaluate locations where firebreaks could be used.		Medium
Strategic Action B3b	Begin installing firebreaks in recommended locations.		Medium

Goal 2: Reduction of intentionally set fires and incidences of illegal hunting in the project area.

Strategy C: Raise awareness and education of the Rota community about how fires and poaching are affecting the watershed.

Table 5: Strategy C objectives

<u>Item</u>	<u>Description</u>		<u>Priority</u>
Objective C1	Gain a better understanding of knowledge, attitudes, and behaviors regarding resources of concern and intentionally set fires.	By 2013, have assessed the attitudes, behaviors, and knowledge of the Rota population regarding identified resources and intentionally set fires. Indicator: Key recommendations for improving awareness campaign	High
Strategic Action C1a	Develop and test a survey that will allow managers to better understand the attitudes, behaviors and knowledge of the Rota community regarding environmental issues		High
Strategic Action C1b	Recruit and train 10 enumerators from the Rota community to conduct the survey.		High
Strategic Action C1c	Conduct survey with a statistically representative sample of the Rota population and analyze data gathered.		High
Strategic Action C1d	Create final report detailing recommendations for moving forward with outreach campaigns in the Rota community		High

Strategic Action C1e	Present results to resource managers and the Rota community.		High
Objective C2	Conduct a fire prevention campaign.	<p>By 2014, see a documented positive trend in community knowledge and appreciation of resources and the threats that fire poses to them.</p> <p>Indicator: community understanding of fire</p>	High
Strategic Action C2a	Develop campaign project plan and materials.		High
Strategic Action C2b	Recruit individual or group from Rota community to head the project on the island.		High
Strategic Action C2c	Conduct the year-long campaign.		High
Strategic Action C2d	Develop and conduct post campaign survey.		High
Strategic Action C2e	Generate final report on the campaign; present results to managers and the Rota community.		High
Strategic Action C2f	Identify next steps (if any) to meet the updated goals of the objective.		High
<p>Comments:</p> <p><i>It is suggested that objective be reworded, i.e By 2014, increase in x% (you can determine) of community knowledge and appreciation of resources and threats that fire poses to them compared to initial survey. (you will have this number from objective C1; or you can simply add x percent increase in the current objective; otherwise a positive trend could mean 1% or 50%;</i></p> <p><i>In addition, can action that would focus on articulating key messages (this could come out of objective C1) that would be the focus of campaign</i></p>			
Objective C3	Increase public awareness.	<p>By 2014, increase public awareness of Rota community to natural resources use and importance by 35% (or as recommended from knowledge survey).</p> <p>Indicator: community knowledge of natural resources</p>	Medium

Strategic Action C3a	Evaluate knowledge survey and design public awareness program based on evaluation.		Medium
Strategic Action C3b	Implement awareness program.		Medium
Strategic Action C3c	Assess success of programs and write exit report including recommendations on improvements for future programs.		Medium
Strategic Action C3d	Hire outreach Coordinators		
Objective C4	Provide Environmental learning opportunities for school age children.	By 2014, implement week long summer camps focused on conservation efforts on island and conduct fourth grade outreach programs. Indicator: knowledge perception	Medium
Strategic Action C4a	Identify agency, group, or NGO to run summer camps and 4 th grade outreach programs.		Medium
Strategic Action C4b	Organize speakers and activities for summer camps.		Medium
Strategic Action C4c	Establish outreach curriculum for fourth grade programs.		Medium
Strategic Action C4d	Assess success of programs and write exit report including recommendations on improvements for future programs.		Medium
Comments:			
<p><i>Objective is too specific that it sound more like an action; could be reworded to, By 2014, provide at least x number of community/school outreach programs. In this way, this objective can support objective C2 & C3, there could be other awareness program that can help to enhance knowledge of natural resources. You have your specific awareness campaign but you could also implement community specific awareness programs for community where you believe needs to increase their awareness to build support, etc.</i></p>			

Strategy D: Creation of effective enforcement measures for local laws.

Table 6: Strategy D objectives

<u>Item</u>	<u>Description</u>		<u>Priority</u>
Objective D1	Complete the training and hiring of two seasonal field agents.	By 2012, have two seasonal part-time agents surveying that project area during peak burning season.	High
Strategic Action D1a	Recruit and interview candidates from the Rota community for the positions.		High
Strategic Action D1b	Train hired agents on necessary skills for position, including surveillance techniques, scene reporting, and basic science behind the project.		High
Strategic Action D1c	Agent supervisor will provide a monthly report on the agent's activity during the time period as well as a season report detail strengths and weakness of the positions.		High
Objective D2	Increase surveillance infrastructure.	By 2014, construct a surveillance tower and procure adequate equipment for surveillance agents (equipment to include ATV, cameras, binoculars, etc).	Medium
Strategic Action D2a	Conduct needs assessment for necessary equipment		Medium
Strategic Action D2b	Assess possible locations for surveillance tower and choose most advantageous.		Medium
Strategic Action D2c	Contract construction work and procure equipment.		Medium
Strategic Action D2d	Establish stringent maintenance and inventory systems to ensure maximum life of equipment.		High
Objective D3	Increase surveillance presence in the area.	By 2015, have one full time agent (logging 40hrs week in surveillance and support of the project goals) on staff.	Medium
Strategic Action D3a	Recruit and interview candidates from the Rota community for the position.		Medium
Strategic Action D3b	Train hired agent on necessary skills for position, including surveillance techniques, scene reporting, basic science behind the project, nursery care, planting techniques, etc.		Medium

Strategic Action D3c	Agent supervisor will provide a bi-monthly report on the agent's activity during the time period as well as a semi-annual report evaluating the agent's work and detailing recommendations for the next period of the program.		Medium
Objective D4	Increase knowledge of Fires started per year.	By 2012, have specific annual record of fires started and the extent of their damage.	High
Strategic Action D4a	Maintain a detailed report of annual fires that will be submitted to managers at end of each year.		High
Strategic Action D4b	Compare burning in Talakhaya to the rest of Rota Island		High
Objective D5	Conservation officer training.	By 2012, have at least one conservation officer trained in evidence collection, report writing, etc that will assist in the building of a case against offenders.	Medium
Strategic Action D5a	Conduct an assessment of current conservation officer needs.		Medium
Strategic Action D5b	Organize and conduct training to address priority needs found in assessment.		Medium
Objective D6	Increase cooperation between DLNR and Department of Public Safety.	By 2012, establish a MOA between DLNR and DPS to improve enforcement cooperation.	Medium
Strategic Action D6a	Schedule meeting between representatives of DLNR, DPS, and other managers to draft MOU that meets goals of all.		Medium
Strategic Action D6b	Have MOU signed by all sides including Rota Mayor and agency heads.		Medium

Goal 3': Reduction of over harvesting in the lands and waters associated with the project area.

Strategy E: Collect necessary information about populations in the area to make more informed policy decisions.

Table 7: Strategy E objectives

<u>Item</u>	<u>Description</u>	<u>Priority</u>
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Objective E1	Increase baseline data for targeted fish and invertebrates.	By 2013, DFW and MMT will collect detailed baseline data on targeted fish and invertebrates in the waters associated with the project area.	High
Strategic Action E1a	Conduct assessment of baseline needs.		High
Strategic Action E1b	Develop surveying plan according to needs assessment.		High
Strategic Action E1c	Conduct survey and analyze data.		High
Strategic Action E1d	Detailed report on survey results presented to managers and Rota officials.		High
Strategic Action E1e	Incorporate targeted fish and invertebrate species surveys into annual DFW/MMT surveys.		High
Objective E2	Begin Creel surveying on Rota.	By 2015, Creel 50% of shore-based fisherman annually in Rota.	Medium
Strategic Action E2a	Hire 1 fulltime employee to head the Rota CREEL program.		Medium
Strategic Action E2b	Train program managers and interviewing personal on conducting CREEL surveys.		Medium
Strategic Action E2c	Program manager to submit quarterly reports detailing staff CREEL activities and results.		Medium
Strategic Action E2d	Annual report of analyzed data to be submitted to fishery managers and to the public.		Medium
Objective E3	Conduct Rota community survey on possible LMMA	By 2015, have conducted a community survey to assess attitudes and motivations toward developing a locally managed marine area within the project area. [Could be coupled with objective C1]	Medium
Strategic Action E3a	Develop and test a survey that will allow managers to better understand the attitudes and motivations of the Rota community regarding a possible LMMA.		Medium

Strategic Action E3b	Recruit and train 5 enumerators from the Rota community to conduct the survey.		Medium
Strategic Action E3c	Conduct survey and analyze data gathered.		Medium
Objective E4	Incorporate collected data into policy considerations	By 2015, have methodology in place to incorporate collected scientific data into management decisions.	High
Strategic Action E4a	Assemble committee of scientists and managers to meet semi-annually to discuss new results and possible changes in policies.		High
Strategic Action E4b	Synthesize data to provide recommendations		High
1: The following objectives are also thought to assist in reaching Goal 3: C3, C4, D1, D2, D3, D5, D6. Their descriptions can be found with the designated objective in the tables above.			

Talakaya Strategy Effectiveness Review Agenda

**April 10, 2012
DEQ Conference Room**

Goal: To determine whether Talakaya CAP strategies are/will be effective in achieving desired outcomes for effective management and conservation of Talakaya watershed

Objectives: By end of the review we will have:

- **determine progress of implementation of existing strategies**
- **determine whether revision of strategies is needed**
- **determine if existing indicators are appropriate, if not make revisions**
- **determine if changes to targets and threats is required**

8:30 – 8:40 am – Introductions

8:40 – 9:10 am – Presentation: Strategy Effectiveness review framework (Steven Victor)

9:10 – 9:35 am – Presentation: Talakaya, conceptual model, results chain and associated objectives (Aric Bickel)

9:35– 10:35 – Group discussion: Strategy Effectiveness measures review – based on objectives and indicators from above presentation (Steven Victor)

10:35 – 11:15 – Group discussion: Make necessary revisions to conceptual diagram, results chain, strategies, and indicators

11:15 -11:45 pm – Next steps