

RESOLUTION OF THE  
NAABIK'ÍYÁTI' STANDING COMMITTEE OF THE  
24<sup>th</sup> NAVAJO NATION COUNCIL -- First Year, 2019

AN ACTION

RELATING TO THE HEALTH, EDUCATION AND HUMAN SERVICES COMMITTEE, RESOURCES AND DEVELOPMENT COMMITTEE AND THE NAABIK'ÍYÁTI' COMMITTEE; ACCEPTING AND APPROVING THE CLIMATE ADAPTATION PLAN FOR THE NAVAJO NATION AS DEVELOPED BY THE NAVAJO NATION DEPARTMENT OF FISH AND WILDLIFE AND ESTABLISHING SAID PLAN AS THE OFFICIAL CLIMATE ADAPTATION PLAN OF THE NAVAJO NATION TO BE IMPLEMENTED AND FURTHER DEVELOPED IMMEDIATELY BY THE NAVAJO NATION GOVERNMENT

WHEREAS:

- A. The Health, Education and Human Services Committee of the Navajo Nation Council exercises oversight over matters concerning the health of the Navajo Nation. 2 N.N.C. § 400 (C) (1)
- B. The Resources and Development Committee of the Navajo Nation Council exercises oversight authority over water, land, grazing, environment, economic and community development. 2 N.N.C. §500 (C).
- C. The Naabik'íyáti' Committee of the Navajo Nation Council is the standing committee empowered to coordinate and pronounce the official position of the Navajo Nation before non-Navajo government federal, state or other entities. 2 N.N.C. § 700 (A).
- D. "Climate Change is real. Effects from climate change are happening right now and the Navajo People are witness to its continuing outcome. Analyzing the effects to the Navajo Nation in all aspects, culture and traditions are at risk. Many areas are being jeopardized by climate change, one of those is- natural resources. Navajo culture is centered around the available, yet diminishing, sources of natural resources." See Exhibit B-"Climate Adaptation Plan for the Navajo Nation" (Page 13)

- E. This legislation is a necessary response to the dangers, concerns and threats to our People, our resources and our way of life caused by the established problem of climate change on the Navajo Nation.
- F. On March 20-22, and March 27-29, 2018 the Navajo Nation Department of Fish and Wildlife (NNDFW) took the initiative to hold the Navajo Nation Community Leaders Climate Change Adaptations Planning Workshop: Establishing Natural Resource Priorities.
- G. The focus of these workshops involved listening to grazing officials, land board members and farm board members who were gathered to gain community level insight on natural resource management and compare those insights with the perceptions of the Navajo Nation natural resource professionals. See **Exhibit A**.
- H. The NNDFW climate change workshops had as their goals: brainstorming a list of natural resource issues; creating a priority list of natural resources issues; creating a plan for climate change adaptation planning processes including compiling a list of action steps, timelines and points of contact and create a plan for climate change adaptation planning process with data generated. See Exhibit A.
- I. Building on the information gathered in the Navajo Nation Community Leaders Climate Change Workshops in December of 2018, the Navajo Nation Department of Fish and Wildlife prepared and released a "Climate Adaptation Plan for the Navajo Nation". See **Exhibit B**.
- J. The "Climate Adaptation Plan for the Navajo Nation" (Plan) provides outlines Navajo Nation Priority Lists; Key Vulnerabilities on the Navajo Nation; Goals and Adaptation Strategies; Assessing Priorities and Risks and Implementation Plans for Water, Feral Horses, Communication, Enforcement and Compliance, Pollution, Air Quality and Illegal Dumping and Grazing Management. See Exhibit B.



- K. The Plan provides an excellent and viable starting point for the Navajo Nation to identify and address through government policy the impacts of climate change on the Navajo Nation.
- L. The Navajo Nation through its Naabik'iyáti' Committee finds it to be in the best interest of the Navajo Nation and the Diné to accept and approve the "Climate Adaptation Plan for the Navajo Nation" (Plan) as attached at Exhibit B and to adopt the Plan as the official Climate Adaptation Plan for the Navajo Nation to be implemented and further developed immediately by the Navajo Nation Government.

**NOW THEREFORE, BE IT RESOLVED:**

The Navajo Nation through its Health, Education and Human Services Committee and Resources and Development Committee and Naabik'iyáti' Committee hereby accepts and approves the "Climate Adaptation Plan for the Navajo Nation" (Plan) as attached at Exhibit B and adopts the Plan as the official Climate Adaptation Plan for the Navajo Nation to be implemented and further developed immediately by the Navajo Nation Government.

**CERTIFICATION**

I, hereby, certify that the foregoing resolution was duly considered by the Naabik'iyáti' Committee of the 24<sup>th</sup> Navajo Nation Council at a duly called meeting in Window Rock, Navajo Nation (Arizona), at which a quorum was present and that the same was passed by a vote of 12 in Favor, and 00 Opposed, on this 5<sup>th</sup> day of September 2019.

  
Honorable Seth Damon, Chairman  
Naabik'iyáti' Committee

Motion: Honorable Raymond Smith, Jr.  
Second: Honorable Rickie Nez

Chairman Seth Damon not voting

EXHIBIT

tabbles

A



## Navajo Nation Community Leaders Climate Change Adaptation Planning Workshop: Establishing Natural Resource Priorities

Summary Report

March 20-22, 2018

Northern Arizona University's Native American Cultural Center  
Flagstaff, AZ

March 27-29, 2018

Nenahnezad Chapter House  
Fruitland, NM

### Workshop Organizing Partners:

Navajo Nation Department of Fish and Wildlife

Navajo Nation Department of Agriculture

Navajo Nation Department of Water Resources

Navajo Nation Department of Heritage and Historic Preservation

### Summary Report Authors:

Gloria Tom, Navajo Nation Department of Fish and Wildlife

Carolynn Begay, Navajo Nation Department of Fish and Wildlife

Taylor Silva, Navajo Nation Department of Fish and Wildlife

John Begay, Navajo Nation Department of Fish and Wildlife





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## Executive Summary

On March 20-22, 2018 and March 27-29, 2018, the Navajo Nation Department of Fish and Wildlife (NNDFW) hosted workshops for community leaders on the western and eastern halves of the Navajo Nation. There were 25 attendees invited to each three-day planning workshop to discuss and create a prioritized list of natural resource issues, as well as a plan for future climate change adaptation planning. These workshops consisted of collaborating with these community leaders by discussing climate change and its impacts to Navajo lands and identifying priority natural resource concerns. These concerns will form the basis of a climate change adaptation plan for the Navajo Nation.

The focus of these workshops involving grazing officials, land board members, and farm board members was to gain community-level insight on natural resource management and compare that to the perceptions of Navajo Nation natural resource professionals.

In January 2018 a workshop similar to these community workshops was held for the Navajo Nation Division of Natural Resources (NNDNR) and the results will be discussed later in this report. This report summary will be used to address future climate change adaptation throughout the Navajo Nation.

## Goals and Objectives

The goals of these climate change workshops were:

- Brainstorm a list of natural resource issues
- Create a priority list of natural resource issues
- Create a plan for climate change adaptation planning process
  - Compile a list of actions, timeline and points of contacts
  - Create a plan for climate change adaptation planning process with data generated

## The Planning Process

In addition to community leaders from Farm Board, Grazing Committee, and Land Board, individuals from several Navajo Nation natural resource departments participated by facilitating discussions, and to help engage, inform, and attend to their community concerns regarding natural resources.

Each workshop introduced climate change on the Navajo Nation by showing a video on climate change impacts. The short film was produced by USGS and is titled "A Record of Change: Science and Elder Observations on the Navajo Nation". The video was followed by a slide show presentation from the Navajo Nation Department of Fish and Wildlife staff on, "What is Climate Change". After these presentations the attendees were asked to provide feedback on various aspects of climate change on the Navajo Nation and the attendees were divided into groups for future breakout sessions. The breakout sessions consisted of:

Breakout Session 1: "How does Climate Change affect my community?"

Breakout Session 2: "What are the Natural Resource concerns?"

- Determine common areas of natural resource concerns
- Vote on the top natural resource issues

Breakout Session 3: Fish Bone Exercise



## Navajo Nation Climate Change Workshop Community Leaders

- Create fish bone diagrams for top natural resource concerns (3-4 topics per group)

After the breakout sessions were completed NNDFW staff presented the climate change adaptation planning process that is used by Institute for Tribal Environmental Professionals (ITEP). The workshops concluded with an open discussion on management action strategies, including timelines and identifying responsible person(s).

### Analyzing Priority Concerns

Our process used to engage participants to brainstorm on climate change consisted of creating small group discussions. By doing this we allowed the community leaders to have a voice in a more comfortable environment. As a result we received valuable input on their community's natural resource issues, concerns, and the external factors influencing those issues. For example, water windmills are not working due to lack of funds to maintain them.

### Taking Action

Once the priority concerns were identified, participants discussed action strategies for addressing these natural resource concerns. For example, for more ample grazing areas it was determined Grazing Officers need maps of wildlife areas, carrying capacity information, land uses (home sites, farms), and water resources.

### Introduction

As a result of the NNDNR Strategic Climate Adaptation meeting held in January 2018, a NNDNR Climate Change Team was created which included:

Name	Department	Title
Eddie Benally	Navajo Nation Department of Fish and Wildlife	Wildlife Conservation Officer
Chad Smith	Navajo Nation Department of Fish and Wildlife	Zoologist
Terilynn Yazzie	Navajo Nation Department of Fish and Wildlife	Fish Biologist
Carlee McClellan	Navajo Nation Department of Water Resources	Senior Hydrologist
Rowena Cheromiah	Navajo Nation Department of Minerals	Minerals Royalty Flash Audit Manager
Vangie Curley-Thomas	Navajo Nation Division of Natural Resources	Deputy Director
Melinda Arviso-Ciocco	Navajo Nation Heritage and Historic Preservation Department	Navajo Cultural Specialist
Roxie June	Navajo Nation Department of Agriculture	Principal Planner
Harriet Sandoval	Navajo Nation Heritage and Historic Preservation Department	Senior Archaeologist



Navajo Nation Climate Change Workshop  
Community Leaders

<b>Charmaine Hosteen</b>	Navajo Nation Department of Agriculture	Principal Extension Agent
<b>Taylor Silva</b>	Navajo Nation Department of Fish and Wildlife	Wildlife Technician
<b>Carolynn Begay</b>	Navajo Nation Department of Fish and Wildlife	Wildlife Technician
<b>John Begay</b>	Navajo Nation Department of Fish and Wildlife	Wildlife Technician
<b>Gloria Tom</b>	Navajo Nation Department of Fish and Wildlife	Director
<b>Wilfred Big</b>	Navajo Nation Department of Agriculture	Senior Extension Agent
<b>Edison Emerson</b>	Navajo Nation Department of Fish and Wildlife	Wildlife Technician
<b>Vernonda Howard</b>	Navajo Nation Department of Fish and Wildlife	Office Specialist
<b>Aileen Hale-Chee</b>	Navajo Nation Department of Fish and Wildlife	Administrative Service Officer
<b>Leanna Begay</b>	Institute for Tribal Environmental Professionals	Climate Change Program Coordinator
<b>Bidtah Becker</b>	Navajo Nation Division of Natural Resources	Executive Director
<b>Kimberly Johnson</b>	Navajo Nation Department of Agriculture	Office Specialist

The climate change team organized two workshops: one workshop for community elected leaders in the eastern half of the Navajo Nation and another workshop for community elected leaders in the western half of the Navajo Nation. The workshop locations were determined by available lodging areas, conference room availability, and traveling distance for attendees. These workshops were funded through the 2016 Bureau of Indian Affairs (BIA) Tribal Resiliency Grant for Tribal Adaptation and Capacity Building. Under this grant the NNDFW funded twenty-five participants to attend each workshop, including lodging, meals, and mileage from their worksite to the workshop location.

In late February NNDFW's Climate Change Program provided DNR's priority natural resource concerns at a reservation-wide Grazing, Land Board, and Farm Board meeting. After the presentation, multiple community leaders volunteered to participate in one of the workshops. NNDFW also coordinated with the Department of Agriculture who provided a recommended list of Grazing, Land Board and Farm Board members they believed should attend.





The first workshop took place March 20-22, 2018 for the Western half of the Navajo Nation at Northern Arizona University (NAU) - Native American Cultural Center in Flagstaff, Arizona. The second workshop took place March 27-29, 2018 for the Eastern half of the Navajo Nation at Nenahnezad Chapter House in Fruitland, NM. Forty Community Elected Officials attended a three day workshop where they provided their input based upon their knowledge of their communities' natural resources. A prioritized natural resource concern list was generated and action strategies with timelines and responsible person(s) were developed.

## Climate Change Adaptation:

### Five-Step Planning and Implementation Process

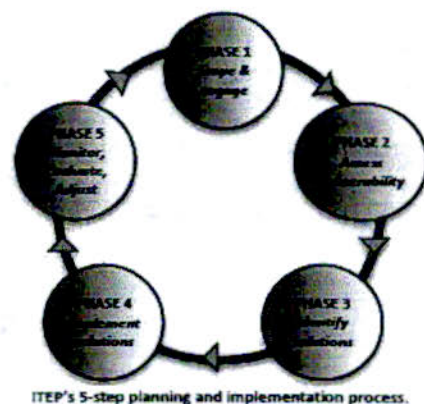
ITEP developed a five-step planning and implementation process to support tribal communities to take actions that will minimize their future impacts and reduce their vulnerabilities to climate change.

The Five Phases include:

- Phase 1 – Scope and Engage
- Phase 2 – Assess Vulnerability
- Phase 3 – Identify and Prioritize Solutions
- Phase 4 – Implement Solutions
- Phase 5 – Monitor, Evaluate and Adjust

Activities during the workshops were focused on gathering information to feed into Phases 1, 2, and 3 of the Climate Change Adaptation Planning Process. Below, we provide further detail about each of these phases and the knowledge shared by participating community elected leaders.

Figure 1 – Five steps to resilience diagram



### Phase 1: Scope and Engage

Climate change has the potential to affect nearly every aspect of natural resource functioning and management. Yet, given limited time and resources, it is often necessary to initially focus on a few resources or areas.

This is not to say that other elements are not important; these elements could be considered in future planning and actions, but there is a need to start somewhere.

In Phase 1, the focus or scope of the plan is determined. The engagement process involves community members, natural resource managers, and leadership and this continues throughout the entire plan development. The following steps are suggested for the 'Scope and Engage' phase:

- Brainstorm what natural resource issues are important
- Prioritize and decide on topics to be the plan focus
- Gather initial climate change and impacts info
- Develop a value statement to guide the plan
- Establish a planning guide with goals and milestones
- Build support/form partnerships with communities
- Build support/form partnerships with leadership



## Navajo Nation Climate Change Workshop Community Leaders

- Continue to foster communication and collaboration among departments

The Navajo community leaders completed the first and second bullet point steps during the workshops and used a USDA-Natural Resource Conservation Service (NRCS) planning process for natural resource identification and prioritization. This process is described in more detail below.<sup>1</sup>

The attendees were separated into four groups and were asked to provide their opinions on several questions. Each group had a facilitator and a Navajo translator. By having a Navajo translator present it gave the attendees an opportunity to voice their opinion in their desired language.

### Breakout Session 1: How does climate change affect my community?

After the community leaders watched a video on climate change impacts on the Navajo Nation and observations from various Navajo elders. The attendees also gained an understanding about climate

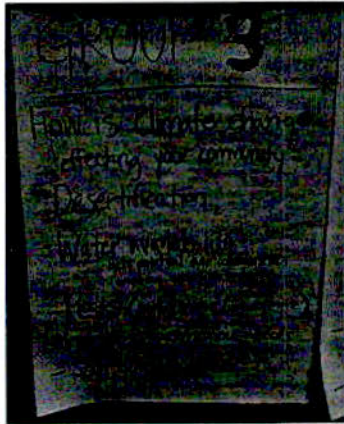


Figure 2 - Group concerns on climate change affecting communities

change impacts from NNDFW staff, and then the first inquiry session began. For the first breakout session, the attending community leaders were split into four groups and were asked to respond to the following question, "How does climate change affect my community?" The purpose of the question was to get the leaders thinking about how their communities were being impacted by climate change.

All attendees' comments were listed on poster sheets and discussed. After the breakout session, all groups came back into the main room and displayed

their poster sheets, sharing the results of each discussion from the groups. By having each group present their

"Everyone has not just one horse but multiple horses because it is seen as being wealthier, even though they are skinny and not well kept"

—Navajo Community Leader

findings it allowed all attendees to have an open discussion on the issues that were brought up. It also allowed the individuals to see what other communities were facing when it came to climate change. Some of the common issues that were identified within the four groups are: water wells, water catchments, invasive species, drought, feral horses, sand dunes, water recharge, etc. (Refer to Appendix D1- D2). Attendees also talked about traditional practices diminishing. For example, modern day sheep herding involving the use of ATVs or vehicles, as opposed to walking or using horses. Issues of cultural barriers were also brought up due to most information being distributed in English rather than Navajo and how there is little to no youth interest in Navajo natural resources.

When giving a short presentation on climate change on the Navajo Nation there were many questions on why the information was not being told in the Navajo language and how staff should be interpreting the information to the community members who only understood Navajo. During this time many of the attendees stood up to say that they take on the responsibility in their own community to translate the information into Navajo so those who did not speak fluent Navajo did not feel opposed to presenting at their chapters. Many also requested for a copy of the presentation so they can study and present it to their communities in the Navajo language.

<sup>1</sup> Final Summary Report Navajo Nation Strategic Planning Workshop [PDF file], 4.



Breakout Session 2: What are your communities' natural resource management concerns?

The next breakout session focused on the groups identifying and prioritizing their communities' natural resources concerns. Many of the participants quickly identified NNDNR performance issues such as lack of enforcement, communication, and lack of collaboration between the chapter and NNDNR. The participants stated these concerns are a major problem due to interdepartmental conflicts and there is a lack of knowledge and familiarity on policies and regulations. After each group



Figure 3 - Community leaders are gathered around their priority list voting on their top concern

identified their priorities the results from each group was compares and those items that were similar were grouped together. A final natural resource management concerns list was developed the participants were asked to vote on their top priority(s). The results of the prioritization process are listed below in Table 1 (Flagstaff Workshop priority list) and Table 2 (Nenahnezad Workshop priority list).

Table 1: Western Navajo Workshop Priority List

Priority	# of votes
1. Communication	16
2. Enforcement/ Compliance	14
3. Education/ Outreach	14
4. Water (management, security, conservation)	12
5. Feral horses	10
6. Grazing Management	9
7. Animal Control	9
8. Sustainability Resources (clean, alternative)	8
9. Soil Conservation	5
10. Land Use	5
11. Restoration/Rehabilitation	4
12. Pollution	3
13. Youth	3
14. Invasive Species	2
15. Record Keeping/ GPS data	1
16. Forest Management	0

Table 2: Eastern Navajo Workshop Priority List

Priority	# of vote
1. Enforcement	15
2. Feral Animals	13
3. Water	12
4. Grazing Managements	11
5. Air Quality	10
6. Funding	7
7. Education	6
8. Communication	6
9. Forestry	5
10. Illegal Dumping	4
11. Land Management	2
12. Pollution	2
13. Animal Control	2
14. Invasive Species	1
15. Youth	1
16. Erosion	0

## Phase 2: Assess Vulnerability

Phase 2 is the heart of the Adaptation Plan. If you can understand why you are experiencing the impacts that you are, this will give you a lot of options for adapting. This phase focuses on assessing vulnerability to climate change impacts, or, in other words, asking what the Nation's strengths and weaknesses are for adapting to climate change. Vulnerability assessments provide information to identify adaptation options, set priorities, and identify knowledge gaps.

**Vulnerability-** Susceptibility to harm.

**Vulnerability Assessment-** Understand how climatic and non-climatic factors together will affect the Navajo Nation and its resources<sup>2</sup>

When we think about adapting to climate change, it is important to consider how both climatic and non-climatic factors interact together to create the impacts we are currently facing. The same impact could occur differently depending on the influence of non-climatic factors. For example, lack of enforcement (non-climatic factor) on illegal trash burning causing more greenhouse gases (climatic factor) to be released into the atmosphere. In result, there is no resolution due to lack of enforcement. This is one example of how climatic and non-climatic factors together will affect one of the Navajo Nations natural resources, which was discussed during both workshops.

### Breakout Session 3: Cause and Effect using the Fishbone Diagram

In addition to the priority list created a cause and effect activity was used to analyze an issue. This is known as the fishbone diagram. The fishbone diagram identifies many possible causes for an effect or problem and adds structure during a brainstorming session. It immediately sorts ideas into useful categories. By using this method, the attendees were able to focus on three to four

concerns from the natural resource priority lists (communication, education & outreach, pollution, animal control, etc., refer to appendix E1-E2) to thoroughly analyze causes for each of these issues.

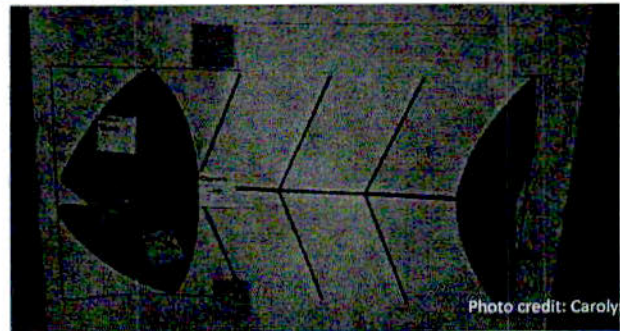


Figure 4 - Fishbone Diagram template.

Figure 4 shows the template of a fishbone diagram. The head of the diagram represents the natural resource concern, or effect, while the body is branched into major categories that are the causes of the problem. Under each main category for the problem, the groups brainstormed all possible causes of the problem. Each group was asked "Why does this happen?" All ideas were captured.

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<sup>2</sup> Ibid., 6.



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Community Leaders

Each group created three to four fishbone diagrams and these are summarized in the tables below. All of the actual fishbone diagrams created during both workshops can be viewed in Appendix E-1 and Appendix E-2.

Below are the digitized fish diagrams that were combined from the Nenahnezad and Flagstaff workshop, compiled by the NNDFW's Climate Change Program.



Figure 5 - Group from Nenahnezad Workshop presenting their fish diagrams

Communication		
Cause	Why does this happen?	Comments from Nenahnezad (N) or Flagstaff (F) workshop:
Higher ups not listening to locals	- Working w/ each other to complete-agenda lack of attendance from committees.	(F)
	- Educating the community, whoever shows up	(F)
Certain individuals permitted to land, animals, etc.	- Lack of communication between generations-workload (Only certain people have permits and they are difficult to work with).	(F)
Locals prioritizing their concerns- taking what is learned to educate the communities	- Lack of communication between generations- workload	(F, N)
Lack of interdepartmental communication	- Inviting other communities to be aware of what is being done or proposed. Sharing the knowledge building a friendship- be open to people.	(F, N)
Departments not responding to community needs	- Six months to convene with departments on aligning management plans- keeping track of goals, officials want to be certified (trained)	(F, N)
Permittees	- Lack of participation	(N)
	- Printed materials	(N)
	- Need materials to make presentations	(N)



Navajo Nation Climate Change Workshop  
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	- Permittees/residents go around local officials	(N)
<b>Window Rock</b>	<ul style="list-style-type: none"> <li>- Cross training</li> <li>- Need training for GPS</li> <li>- Unclear procedures for assessing damage and disturbance</li> <li>- Lack of communication between departments</li> <li>- Lack of decision making</li> <li>- No follow up on permission</li> </ul>	(N, F) (N) (N) (N, F) (N, F) (N, F)
<b>Dept. of Agriculture</b>	<ul style="list-style-type: none"> <li>- Lack of consistency across agencies               <ul style="list-style-type: none"> <li>• Uniformity</li> </ul> </li> <li>- No access to computers</li> <li>- Email access</li> <li>- Lack of equipment cameras (GPS)</li> </ul>	(N, F) (F) (N) (N) (N)
<b>Outside influences</b>	(Fishbone diagram blank)	
<b>Customer Service</b>	<ul style="list-style-type: none"> <li>- People can't answer questions</li> <li>- People can't communicate their Dept. policies accordingly</li> </ul>	(N) (N)
<b>ISRA</b>	<ul style="list-style-type: none"> <li>- Records out of date</li> <li>- Can't make simple correction</li> </ul>	(N) (N)

<b>Enforcement ( Compliance )</b>		
Cause	Why does this happen?	Comments from Nenahnezad (N) or Flagstaff (F) workshop:
<b>Lack of communication</b>	<ul style="list-style-type: none"> <li>- Permits/ peoples land causing disputes</li> <li>- Need help BIA, Rangers (work along with)               <ul style="list-style-type: none"> <li>• Improve collaboration with equipment</li> </ul> </li> <li>- Get better compliance</li> <li>- Agriculture Department in need of an answering call center; don't answer or no call back.</li> <li>- Lack of customer service</li> </ul>	(F) (F, N) (N) (F, N) (F) (N)



Navajo Nation Climate Change Workshop  
Community Leaders

<b>Lack of safety and increase of disputes with lack of Officers/Rangers</b>	- Safety First	(F, N)
	- Have another officer or Sergeant of arms along with grazing officials when talking with permittees.	(F, N)
	- Enforcement to happen at a neutral and safe location	(F)
	- Land base	(N)
	- No authority for grazing officials	(N, F)
<b>Conflict of interest</b>	- Officers are covering locations where family and friends are located	(F, N)
	- Lack of prosecution	(F)
	- Officers and rangers should not cover home community	(F)
<b>Weak court system/lack of feedback on citations</b>	- Issued citations get lost and no enforcement	(F, N)
	- Need a Six-month time limit to enforce, response time lacking	(F, N)
	- Rangers don't give tally count	(F, N)
	- Lack of documentation from former predecessor	(N)
	- No support & funding	(N, F)
	- Need natural resource as a priority	(N, F)

**Education ( Outreach, Youth )**

Cause	Why does this happen?	Comments from Nenahnezad (N) or Flagstaff (F) workshop:
<b>Lack of Communication</b>	- No communication, no knowledge, and no education	(F, N)
	- Parents are "not being parents"	(F)
	- No understanding of cultural teachings and language	(F, N)
	- Make information understandable and easy for older generations	(F, N)
<b>Generation Gap Older vs. Younger generation</b>	- Creates communication problems	(F)
	- Younger generation do not learn the Navajo language	(F, N)
	- Will not teach each other	(F)
	- Youth are not being taught by parents	(F, N)
	- Confusion on role responsibilities	(F)



Navajo Nation Climate Change Workshop  
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<b>Lack of classes/ Programs in Schools</b>	<ul style="list-style-type: none"> <li>- Schools do not teach agriculture</li> <li>- Schools do not teach farming</li> <li>- Schools do not teach Navajo Language</li> <li>- Media doesn't use Navajo language</li> </ul>	(F, N) (F) (F, N) (N)
<b>Lack of Funding</b>	<ul style="list-style-type: none"> <li>- Lack of money to teach</li> <li>- Get experienced technical writers</li> <li>- Gender inequality</li> </ul>	(F) (F, N) (F)
<b>Lack of outreach</b>	<ul style="list-style-type: none"> <li>- Officials not being able to attend chapter meetings to educate community members</li> <li>- Lack of understanding               <ol style="list-style-type: none"> <li>1. Regulations</li> <li>2. Responsibility * grazing</li> </ol> </li> </ul>	(F, N)  (N, F) (N) (N)
<b>Policy</b>	<ul style="list-style-type: none"> <li>- Not enough meetings (Permittee)</li> <li>- Need workshops at local community level</li> <li>- Food policy processing center               <ul style="list-style-type: none"> <li>• Vegetation</li> <li>• Beef</li> <li>• Prairie dog</li> </ul> </li> </ul>	(N) (N, F)  (N) (N) (N) (N)
<b>Management</b>	<ul style="list-style-type: none"> <li>- Crop rotation L/S</li> <li>- Herd health, vegetation data, carrying capacity, soil studies, management</li> </ul>	(N) (N, F)

<b>Land Use (soil conservation, Land management)</b>		
<b>Cause</b>	<b>Why does this happen?</b>	<b>Comments from Nenahnezad (N) or Flagstaff (F) workshop:</b>
<b>Overgrazing</b>	<ul style="list-style-type: none"> <li>- Using local animals to re-fertilize land</li> <li>- Improper use of land, poor land management</li> <li>- Making own illegal RMUs but using it wrong ex: overgrazing</li> <li>- Feral Horses</li> <li>- Drought</li> <li>- Trespassing</li> <li>- Illegal fencing</li> <li>- Illegal home site lease</li> </ul>	(F)  (F, N) (F) (N, F) (N, F) (N) (N) (N, F)



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Community Leaders

Over Population	- Less land for vegetation, SWCD reintroduction w/ state	(F)
Crop Rotation	- Erosion	(F, N)
Improper Use of Land	- Change of livestock	(F)
Lack of Water	- Rebuild earth dams - No snow - Water Shed, not capturing water efficiently • No recharge	(F) (F, N) (N, F) (N,F)
Do it for me – managing our own permit	- No land management for all	(F)
Water rights	- Soil retention - Water management • No feed back • No communication	(F) (N, F) (N) (N)
Earthen dam limits	- Less H2O usage, wind breaks	(F, N)
Limiting Land use for people/ wildlife/ plants/ domestic animals	- Soil studies for local education	(F)
Policy/update	- RBDO needs to update their policies • Need to be streamline and simplified, it's too complex. Home site leases, some homes are running businesses for example tire shops - Too many tires & environment waste distributed from vehicle repair shops - BIA firmly took care of home site leases but Navajo Nation takes care of it, Navajo Nation only limits ½ mile for grazing but water holes are further. - BIA took laws into account due to trust responsibilities, Navajo Nation is doing a poor job w/land use - Conservation Plan	(F) (F)  (F)  (F)  (N, F)
Illegal dump sites x2 (Pollution)	- Trading post owners started dumping trash into washes, Navajo Nation Chapters Charge for trash disposal	(F)



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	<ul style="list-style-type: none"> <li>• Should we get rid of fee?</li> <li>- Air quality</li> <li>- Vegetation</li> <li>- water</li> <li>- Health issue</li> <li>- Old sheep dipping</li> </ul>	<p>(F, N)</p> <p>(N)</p> <p>(N)</p> <p>(N, F)</p> <p>(N)</p> <p>(N)</p>
<b>Erosion</b>	<ul style="list-style-type: none"> <li>- Too many roads</li> <li>- Illegal rodeo grounds</li> <li>- Unauthorized burial sites               <ul style="list-style-type: none"> <li>• Need designated cemeteries affecting grazing.</li> </ul> </li> <li>- Over grazing</li> <li>- Canals               <ul style="list-style-type: none"> <li>• Deterioration</li> </ul> </li> <li>- Farmland               <ul style="list-style-type: none"> <li>• Idling</li> <li>• Linked H2O</li> <li>• Probate</li> <li>• Burial</li> </ul> </li> <li>- Monsoon and Flash flooding               <ul style="list-style-type: none"> <li>• Channels and arroyos</li> </ul> </li> <li>- Increased runoff streams</li> <li>- Decline in beavers and wetlands in mountains</li> <li>- Beavers damaging drainage infrastructure</li> </ul>	<p>(F, N)</p> <p>(F)</p> <p>(F)</p> <p>(F)</p> <p>(F, N)</p> <p>(N)</p> <p>(N)</p> <p>(N, F)</p> <p>(N)</p> <p>(N)</p> <p>(N)</p> <p>(N)</p> <p>(N)</p> <p>(N)</p> <p>(N)</p> <p>(N)</p>
<b>Funds and Fencing</b>	<ul style="list-style-type: none"> <li>- Illegal Fencing               <ul style="list-style-type: none"> <li>• Navajo Nation does not consider Grazing permittees when starting projects</li> <li>• When a chapter approves a project w/o informing grazing permittees then problems occur</li> </ul> </li> <li>- Restoration               <ul style="list-style-type: none"> <li>• Mine reclamation</li> <li>• Re-habitation of projects -well ponds</li> <li>• Reseeding ROW</li> </ul> </li> <li>- Home site leases need to be fenced</li> <li>- Home sites should be less and consider more NHA housing</li> </ul>	<p>(F, N)</p> <p>(F, N)</p> <p>(F)</p> <p>(N)</p> <p>(N)</p> <p>(N)</p> <p>(N, F)</p> <p>(F)</p> <p>(F)</p>



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	<ul style="list-style-type: none"> <li>- Home site leases prices are too high</li> <li>- Need more rain catchments</li> <li>- Open range – trespassing</li> </ul>	<p>(F)</p> <p>(F)</p> <p>(F)</p>
<b>Gravel pits</b>	<ul style="list-style-type: none"> <li>- Need more gravel pits, need to work with permittees</li> </ul>	(F)
<b>Farming</b>	<ul style="list-style-type: none"> <li>- Less growth of crops <ul style="list-style-type: none"> <li>• Effects farmers' incomes</li> <li>• Farmers don't make profit</li> <li>• Farmers can't afford equipment</li> </ul> </li> </ul>	<p>(N, F)</p> <p>(N)</p> <p>(N)</p> <p>(N)</p>
<b>Education</b>	<ul style="list-style-type: none"> <li>- Lack of education</li> <li>- Lack of monitoring</li> </ul>	<p>(N, F)</p> <p>(N, F)</p>
<b>People</b>	<ul style="list-style-type: none"> <li>- Traditional / cultural knowledge forgotten</li> <li>- Pollute water- trash, oil spills get into water</li> <li>- Expensive to produce</li> <li>- Overpopulation</li> <li>- Use too much water</li> <li>- Livestock- over population and under weight</li> <li>- Fracking -uses too much ranch water, gets into water table</li> <li>- Educate people <ul style="list-style-type: none"> <li>• Rotational grazing</li> <li>• Reduce 4s</li> </ul> </li> </ul>	<p>(N, F)</p> <p>(N, F)</p> <p>(N)</p> <p>(N, F)</p> <p>(N, F)</p> <p>(N, F)</p> <p>(N, F)</p> <p>(N, F)</p> <p>(N)</p> <p>(N)</p>
<b>Lack of plant cover</b>	<ul style="list-style-type: none"> <li>- Wind erosion</li> <li>- Sand dunes</li> <li>- Pollinators</li> <li>- Hotter/ drier</li> <li>- Over-use</li> <li>- Lack of land management</li> <li>- Hot, less rain</li> <li>- Feral livestock</li> <li>- Change in plant communities</li> <li>- Evaporation</li> </ul>	<p>(N, F)</p> <p>(N, F)</p> <p>(N)</p> <p>(N)</p> <p>(N, F)</p> <p>(N)</p> <p>(N, F)</p> <p>(N, F)</p> <p>(N)</p> <p>(N)</p>
<b>Ponds</b>	<ul style="list-style-type: none"> <li>- Increase bare ground</li> <li>- Become source of erosion</li> </ul>	<p>(N)</p> <p>(N)</p>



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<b>Invasive species</b>		
Cause	Why does this happen?	Comments from Nenahnezad (N) or Flagstaff (F) workshop:
May lose animals/ plants	- No outside collaboration/ ideas to conserve & experiment	(N)
Distributors	- Wind - Unregulated hay • Distribution of non-native plants - Illegal planting of drugs - Off Reservation work- transferring of plants/pesticides - Invasive transfer of on boats • Need better regulations/checks of boats	(N, F) (N, F) (N) (N) (N) (N) (N)
Noxious weeds	- Need noxious weed law	(N, F)
Education	- Public education and outreach • Encourage people to cut down - Council needs to be educated- need to pass to be able to lead • Qualifications • Noxious weed laws need to be passed	(N, F) (N) (N, F) (N) (N, F)

<b>Sustainability Resources (Clean, alternative)</b>		
Cause	Why does this happen?	Comments from Nenahnezad (N) or Flagstaff (F) workshop:
Renewable energy Wind/solar	- Industrial scale • Revenue - Residential	(F, N) (F) (F, N)
Energy efficient Natural gas	- Efficient stoves • Pellet stoves - Convert to Natural gas - Scattered • Expensive	(F, N) (F) (F) (F) (F)
Navajo cultural identity	- Ke' - Sheep - Sustainability	(F, N) (F, N) (F, N)



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	- Cooperation	(F, N)
Housing / development	- Federal law	(F)
	- No time allotted for weekly preventive maintenance	(F)
	- Adobes	(F)
	• Straw	(F)
		(F)
Agriculture	- Cooperative management	(F, N)
	- Local markets	(F, N)
	• Navajo food policy	(F)
	- Marketing drought tolerant crops	(F, N)
	• Hopi corn	
	- Drip irrigation	(F)
	- Food security: USDA inspection	(F)
	• If animals don't pass then there is no market	(F)

Funding		
Cause	Why does this happen?	Comments from Nenahnezad (N) or Flagstaff (F) workshop:
More interests / voters at the community level on natural resources and conservation	- Horse round-up	All (N, F)
	- Hire more rangers	
	- Long term planning budget	
	- More windmills	
	- Earthen beds	
Political process is slow – lose funding – deadline too short when funds come available	- Grazing fee	
	- Reseeding	
	- Livestock panels	
Need grant writers/ professionals to specialize in getting money	- Public education and outreach	
	- RMU's fencing materials	
Build trust (accountability) for funding for support of community	- District boundaries	

<b>Water (Management, Security, Conservation)</b>		
<b>Cause</b>	<b>Why does this happen?</b>	<b>Comments from Nenahnezad (N) or Flagstaff (F) Workshop</b>
<b>Technology &amp; Infrastructure</b>	<ul style="list-style-type: none"> <li>- Lack of equipment</li> <li>- Lack of engineers</li> <li>- Conflict of Interest</li> <li>- No process for requesting repairs.</li> <li>- More projects than Window Rock can handle.</li> <li>- Mismanagement of funds.</li> <li>- Non-functional windmills</li> </ul>	All (F, N)
<b>Environment (Drought, Water table no recharging)</b>	<ul style="list-style-type: none"> <li>- Climate Change</li> <li>- Less snow</li> <li>- More evaporation</li> <li>- Vegetation changing</li> <li>- Expensive to produce</li> <li>- People stop farming</li> <li>- Wildlife/ horses coming into communities</li> <li>- Livestock not priority</li> <li>- Watershed management planning</li> <li>- Overuse</li> <li>- No rain</li> <li>- Lack of education</li> <li>- No runoff</li> <li>- Water codes need to be updated</li> <li>- Illegal hauling from windmills</li> </ul>	All (F, N)
<b>Little Colorado River (LCR) Water Settlement</b>	<ul style="list-style-type: none"> <li>- Officials not advocating</li> <li>- Documentation of crop reports needed.</li> <li>- Not understanding settlement.</li> <li>- Need for watershed planning.</li> </ul>	All (F)



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<b>Economic Factors (Funding)</b>	<ul style="list-style-type: none"> <li>- Want access to USDA grants</li> <li>- Easier NRCS funding requirements</li> <li>- In need of drought agriculture infrastructure for insurance food.</li> <li>- Disorganized project planning</li> <li>- Advocacy lobbying</li> <li>- Alternative livestock sales on Navajo Nation.</li> <li>- Farming: less growth of crops, effects farmers income, farmers do not make profit)</li> <li>- Farmers cannot afford equipment</li> </ul>	All (N, F)
<b>Livestock Overuse</b>	<ul style="list-style-type: none"> <li>- No market for horses</li> <li>- Lack of local markets</li> <li>- Invalid/ inactive permits (Lack of Control)</li> <li>- Feral horses' castration (identified as a solution)</li> <li>- Social status</li> <li>- Noncompliance</li> <li>- Overpopulation</li> </ul>	All (F, N)
<b>Water Table Not Recharging</b>	<ul style="list-style-type: none"> <li>- Watershed management planning</li> <li>- Overuse</li> <li>- No rain</li> <li>- Lack of education</li> <li>- No runoff</li> <li>- Water code needs to be updated</li> <li>- Illegal hauling from windmills</li> </ul>	All (F, N)
<b>People</b>	<ul style="list-style-type: none"> <li>- Traditional/ Culture knowledge forgotten</li> <li>- Polluted water from trash, oil spills get into water</li> <li>- Overpopulation (Higher expenditures for water)</li> <li>- Use too much water</li> <li>- Livestock are overpopulated and underweight</li> <li>- Fracking uses too much ranch water, gets into water table</li> </ul>	All (N, F)
<b>Education</b>	<ul style="list-style-type: none"> <li>- Lack of education</li> <li>- Lack of monitoring</li> </ul>	All (N, F)

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<b>Water Rights</b>	- No feedback and communication from NNDNR departments	(N, F)
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**Pollution (Air Quality, Illegal Dumping)**

Cause	Why does this happen?	Comments from Nenahnezad (N) or Flagstaff (F) Workshop
<b>Water</b>	- Soil crust does not allow vegetation soil runoff in watersheds	All (N)
<b>Abandoned Mines</b>	- Lack of clean up funds - Uranium waste	All (N, F)
<b>Regulations (lack of, no compliance)</b>	- Documenting violations - Polluters not caught - No enforcement, no citations given out - Pollution - Rodent Infestation - Public Health - Oil dumping, changing oil on mountain - Breathing concerns from vehicle emissions - Black lung; human health concerns from mine blasting	All (N, F)
<b>Infrastructure (lack of)</b>	- Dumping sites is only open 8am-5pm (people are working) - High disposal fees - Animal carcass in need of dumping disposal site. - No recycling facilities	All (N, F)
<b>People</b>	- Irresponsible and lazy - Kinship - Bad parenting and lack of role models - Change people's outlooks - Burning fossil fuels, causes air pollution - Burning Styrofoam release gases into air causing temperature change - Burning plastic and trash, releases	All (N, F)



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	<p>gases into air causing temperature change</p> <ul style="list-style-type: none"> <li>- Burning pressure treated wood causes cancer and other health concerns</li> </ul>	
Education	<ul style="list-style-type: none"> <li>- No education on recycling (EPA and Climate Change Program)</li> <li>- Need public publications</li> <li>- Educate youth</li> <li>- Public education and outreach</li> </ul>	All (N, F)

Feral Animals, Feral Horses, and Animal Control		
Cause:	Why does this happen?	Comments from Nenahnezad (N) or Flagstaff (F) Workshop
Feral horses (family lack of horse interest)	<ul style="list-style-type: none"> <li>- Just let them go</li> <li>- Lose interest</li> <li>- No patience</li> <li>- People who pass on</li> <li>- Too many studs- increase in horse population</li> <li>- Lack of teaching, emotional, physical growth, horses being less used → vehicle use increases</li> </ul>	<p>(N, F)</p> <p>(N, F)</p> <p>(N)</p> <p>(N)</p> <p>(N, F)</p> <p>(F, N)</p>
Feral dogs/ wild dogs	<ul style="list-style-type: none"> <li>- Coyotes mix-not afraid of humans</li> <li>- Kills sheep, livestock, cows, colts, and children</li> <li>- Vicious dogs</li> <li>- Become public nuisance</li> <li>- No owners</li> </ul>	<p>(N, F)</p> <p>(N, F)</p> <p>(N, F)</p> <p>(F)</p> <p>(F)</p>
Feral cats	<ul style="list-style-type: none"> <li>- killing birds</li> </ul>	(F)
People are irresponsible (no brands, lack of care, roadkill)	<ul style="list-style-type: none"> <li>- Cultural ways lost- not utilizing all parts from animals</li> <li>- No responsibility when an animal gets injured</li> <li>- Lack of fencing, open range</li> <li>- Parents do not teach kids to support animals</li> <li>- Kids convince parents to buy animals that look cute</li> <li>- Not cleaning after animals which leads to disease and sickness</li> </ul>	<p>(N, F)</p> <p>(N, F)</p> <p>(F, N)</p> <p>(F, N)</p> <p>(F)</p> <p>(F)</p>



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<b>Round up</b>	<ul style="list-style-type: none"> <li>- Feral donkeys</li> <li>- Feral cattle</li> <li>- Transport &amp; abandon horses from outside N.N</li> <li>- Give \$ incentives for people to catch their horses → N.N give people \$ to turnover horses</li> <li>- BLM program adoption program costly &amp; too much work= horses released</li> <li>- Using contractors informing them of landscape-effective rounds ups</li> </ul>	<p>(N)</p> <p>(N), (F)</p> <p>(N)</p> <p>(N, F)</p> <p>(N)</p> <p>(F)</p>
<b>Public Education (herd health, funding by tribe, adding incentives, outside influences)</b>	<ul style="list-style-type: none"> <li>- Enforcement</li> <li>- Right of ways → jurisdiction priorities</li> <li>- Castration training for officials (certification)</li> <li>- Having a "free" castration- incentives (co-sponsoring w/ animal control or other outreach/programs)</li> <li>- Management incentives</li> <li>- Horse meat market- free range meat</li> <li>- Confusion on agency responsibilities/ roles</li> </ul>	<p>(N, F)</p> <p>(N)</p> <p>(F)</p> <p>(F, N)</p> <p>(F)</p> <p>(F, N)</p> <p>(F, N)</p>
<b>Feral animals</b>	<ul style="list-style-type: none"> <li>- Shoot them</li> <li>- Spay/neuter</li> <li>- Enforcement-pinned or chained up</li> <li>- NHA- involvement</li> <li>- Dead animals, diseases, flies (insects carry bacteria)</li> <li>- Animal dumping</li> <li>- Rabies, ticks, chiggers</li> </ul>	<p>(N, F)</p> <p>(N, F)</p> <p>(N, F)</p> <p>(N, F)</p> <p>(N, F)</p> <p>(N, F)</p> <p>(N, F)</p>
<b>Lack of enforcement</b>	<ul style="list-style-type: none"> <li>- Transport of dead animals</li> <li>- Dog sweep</li> <li>- Lack of staff</li> <li>- No fencing</li> </ul>	<p>(N)</p> <p>(N)</p> <p>(N, F)</p> <p>(F)</p>
<b>No laws &amp; regulations for llamas</b>	<ul style="list-style-type: none"> <li>- Officials categorize llamas as sheep</li> <li>- Llamas always referred to as "other species"</li> </ul>	<p>(F)</p> <p>(F)</p>
<b>Over population (carrying capacity reach)</b>	<ul style="list-style-type: none"> <li>- Not enough land to hold livestock population</li> <li>- Owners not being responsible</li> <li>- No control over feral horses (cannot capture them)</li> </ul>	<p>(F, N)</p> <p>(F, N)</p> <p>(F)</p>
<b>Border Towns</b>	<ul style="list-style-type: none"> <li>- Blame Navajo Nation on feral animals</li> <li>- People haul animals onto the reservation</li> </ul>	<p>(F)</p> <p>(F)</p>



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Lack of veterinarians and vet clinics	- No funding	(F, N)
	- Lack of staff	(F, N)

Cause:	Why does this happen?	Comments from Nenahnezad (N) or Flagstaff (F) Workshop
<b>Grazing permits</b>	<ul style="list-style-type: none"> <li>- Using dead peoples permits</li> <li>- Fees</li> <li>- Incomplete tally counts</li> <li>- Over permit</li> <li>- Missing area numbers</li> <li>- Disputes</li> <li>- Non-use → cancellation</li> <li>- Probate</li> <li>- Politics</li> <li>- Outdated permits</li> </ul>	(N) (N) (N, F) (N, F) (N) (N, F) (N) (N) (N, F) (N, F)
<b>Conservation plans (lack of resources)</b>	<ul style="list-style-type: none"> <li>- No defined template</li> <li>- Lack of data</li> <li>- Hard to do</li> <li>- Updated every 10 years</li> <li>- Expenses- help writing (grant writers)</li> <li>- Over lapping customary use</li> <li>- Will plan out all that needs to happen</li> <li>- Educate through the conservation plan</li> <li>- No replanting of trees that are being cut for fire wood (program for replanting, help air and land)</li> </ul>	(N) (N, F) (N) (N) (N, F) (N) (N) (F) (F, N)
<b>Livestock control</b>	<ul style="list-style-type: none"> <li>- Fencing</li> <li>- Feral livestock trespassing</li> <li>- Amend grazing regulations (too much power in over permittee)</li> <li>- No breed (who is responsible)</li> <li>- Cattle guard</li> </ul>	(N) (N, F) (N, F) (N, F) (N)
<b>Water security</b>	<ul style="list-style-type: none"> <li>- Wind mills don't work</li> <li>- Competition</li> <li>- Conflict</li> </ul>	(N, F) (N, F) (N, F)
<b>Public/ Education</b>	<ul style="list-style-type: none"> <li>- Permittees don't like to go to meetings</li> <li>- Try to make meetings more accessible</li> </ul>	(F, N) (F)



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	<ul style="list-style-type: none"> <li>- More education on range and land rotational grazing needs to be implemented for grazing permits.</li> <li>- RMU's have no authority over leases that are not being used (need to manage &amp; protect cultural areas, have maps to show people where they can graze)</li> <li>- No support for round ups, conflict was people didn't like that it was just put onto the chapters, president not supportive of horse hunt</li> </ul>	<p>(F, N)</p> <p>(F, N)</p> <p>(F, N)</p>
<b>Funding</b>	<ul style="list-style-type: none"> <li>- Lack of funding</li> <li>- Without people attending meetings no fund for fencing, etc.</li> <li>- Funds to grazing for people who do castrations, not to chapters</li> </ul>	<p>(F, N)</p> <p>(F, N)</p> <p>(F)</p>
<b>Miscommunication</b>	<ul style="list-style-type: none"> <li>- Office level re-writing books</li> <li>- Not passing it at council confusing Grazing Officials</li> <li>- Community is misinformed</li> <li>- Field level grazing officials not informed of office level projects</li> </ul>	<p>(F)</p> <p>(F, N)</p> <p>(F, N)</p> <p>(F)</p>
<b>NPL is not a priority of our leaders</b>	<ul style="list-style-type: none"> <li>- Expedite re-issuance grazing permits</li> <li>- Involves compliance</li> <li>- No grazing permits but people not signing off, so people just move in</li> </ul>	<p>(F)</p> <p>(F)</p> <p>(F)</p>

<b>Forestry Management</b>		
<b>Cause:</b>	<b>Why does this happen?</b>	<b>Comments from Nenahnezad (N) or Flagstaff (F) Workshop</b>
<b>Fire- wild or prescribed</b>	<ul style="list-style-type: none"> <li>- Reseeding</li> </ul>	(N, F)
<b>Over grazing</b>	<ul style="list-style-type: none"> <li>- Livestock where they are not supposed to be</li> </ul>	(N, F)
<b>No land improvement plans (Timber Harvest, preservation of cultural sites)</b>	<ul style="list-style-type: none"> <li>- Illegal harvesting of trees</li> <li>- No home sites</li> <li>- Hunting</li> <li>- Deforestation</li> <li>- Effects view, offering areas, ceremonies</li> </ul>	<p>(N, F)</p> <p>(N)</p> <p>(N)</p> <p>(N)</p> <p>(N, F)</p>



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	- Increases erosion, vegetation loss, water loss, decrease in birds/ wildlife	(N)
Location of medicinal plants, traditional use areas	- Offering sites protected - In use sites being distributed	(N, F) (N)
Less deer (mountain animals)	- Animal population changes migration	(N, F)

Restoration & Rehabilitation		
Cause:	Why does this happen?	Comments from Nenahnezad (N) or Flagstaff (F) Workshop
Streams	- Invasive species - Pollution - Trash dumping	(N, F) (N, F) (N, F)
Rangeland (invasive species, overgrazing)	- Management (fencing) - Reseeding - Deferred grazing - Removal of feral/ trespassing livestock - Weeds - Increase in sand dunes - Increased erosion rates	(N, F) (N, F) (N) (N, F) (N, F) (F, N) (F)
Soil	- Abandoned mines - Erosion (windbreak)	(N, F) (N)
Wetlands (earthen dams)	- Illegal fencing - Trash dumping - Natural spring - Protection - Not being maintained	(N) (N, F) (N) (N) (N, F)
Construction rehabs	- Reseeding not happening	(N, F)
Education & Awareness	- Why are we doing this?	(N)
Illegal dumping	- Wood haulers chopping down multiple trees in any area - Creating new roads - Abandoned vehicles become attraction to pests	(F, N) (F, N) (F)
No offerings & ceremonies to bring back rain	- Fake medicine men - Becoming expensive to hire medicine men	(F) (F)



During discussions a few of the groups had a tendency to begin discussing adaptation strategies. Facilitators had to redirect the groups to continue discussing natural resource concerns. Yet the groups were actually creating solutions for some of their natural resource concerns, which is the next phase for accomplishing resiliency.

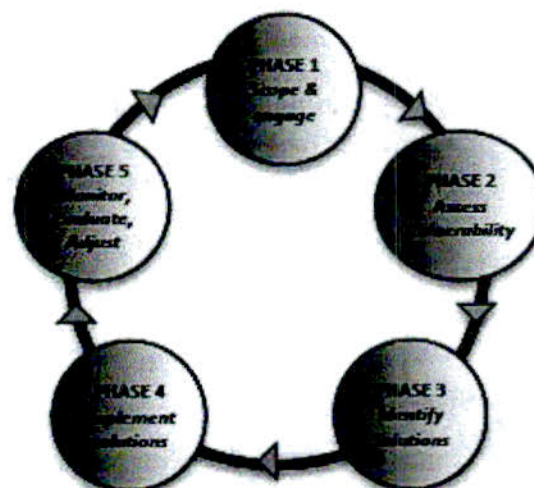
### Phase 3: Identifying Solutions

After the fishbone session, the community leaders were introduced to a climate change adaptation planning strategy used by the ITEP Climate Change Program.

ITEP developed a five-step planning and implementation process to support tribal communities to take actions that will minimize their future impacts and reduce their vulnerabilities to climate change.

The five phases include:

- Phase 1 – scope and engage
- Phase 2 – assess vulnerability
- Phase 3 – identify and prioritize solutions
- Phase 4 – implement solutions
- Phase 5 – monitors, evaluate and adjust



ITEP's 5-step planning and implementation process.

The leaders were introduced to the five steps to resilience. It was explained that they had completed Step 1: Scope and Engage and Step 2: Assess Vulnerability within their group discussions. The groups had then lead into Step 3: Identifying Solutions. The purpose of this phase is to develop workable solutions to lower climate-related risks. Time was set aside to help the leaders determine actions that could reduce risks for people residing within the Navajo Nation. We pushed the community leaders to think bigger and more diverse for a better pool of suggestions, which could lead to identifying a forward-looking response that addresses the problem and offers additional co-benefits.

After all groups presented we moved on to the last open discussion where the attendees were asked "Who should get involved?", such as local organizations, certain individuals within the Navajo Nation government, Division of Natural Resources, and Bureau of Indian Affairs. These contacts would help with the lack of information within the community and is a major key within the adaptation planning and implementation. The workshops action plans are shown below:

#### Flagstaff Action Plan

##### Who is involved:

- 5 Agency Councils
- Standing committee (RDC Committee)

##### Communication Action Plan



1. Two permittee meetings per month (1 at beginning of month, 1 at the end of the month)
2. NNDFW will create a Climate Change Workshop Report for Community Planning Meetings and Permittee Meetings.
3. NNDFW will provide report/presentation for farm board/ grazing officials by June 29, 2018.

#### Education & Outreach Plan

1. Continue outreach efforts for NNDFW Climate Change Team
2. Presentations at Permittee Meetings on community planning meet with assistance from Department of Agriculture and Fish & Wildlife (with planning, regular chapter meeting, district meeting)
3. Commit to communicating with community on concerns related to natural resources, climate change, and agriculture
4. Better management on scheduling meetings (district meetings, permittee, planning, regular chapter meetings)
5. Create resource report (monthly) - Elected Officials/ Department of Agriculture
6. At the completion of this report, NNDFW will coordinate with Department of Agriculture to develop a schedule to meet with Elected Officials.
  - o Tie in with another meeting (ex. Agency meeting)

#### Gathering Resources Plan

??????

#### **Nenahnezad Action Plan**

##### **Who is involved:**

- District Grazing Committee
- Farm Boards
- Chapters
- NNDNR
- BIA
- NNDFW
- NNDNR Enforcement Programs

#### Communication Action Plan

1. Compile report on three workshops (Flagstaff workshop, Nenahnezad Workshop, NNDNR)
  - a. Report to attendees - NNDFW / Department of Agriculture
2. Develop a better coordinated effort with District Grazing Committee, Farm Board, Chapters, NNDNR (Flagstaff Workshop Communication Plan)

#### Education & Outreach Plan

1. Create an informational packet on Climate Change
  - a. For elected officials use for outreach

#### Gathering Resource Plan

- Maps/ Data
    - a) NNDFW: Wildlife areas (928 871 6450)
    - b) Grazing area maps
    - c) Data for DGC areas- carrying capacity
    - d) Forest area grazing
    - e) Land uses- home sites, farms
    - f) Water resources Carl McClellan
- { BIA

#### Climate Change Adaptation Plan



#### Phase 4: Implement solutions

As the group moves towards implementing solutions, it's important to make a cooperative stance with wide collaboration between the community and government level. It was mentioned by several of the community leaders that they were not supported through the Department of Agriculture or within the Chapters they serve. They discussed their need for support. For example, one of the community leaders expressed how they did not have access to a personal office at their chapter, the chapter equipment, training, and contacts. Community leaders also felt excluded from the planning meetings and not being accurately informed of said meeting outcomes. With this known, the importance of improved and better departmental companionship is well needed. The community leaders stressed there is a need for accountability within their chapters to make these changes such as management actions, strategies, and timelines.

A good example brought up was the lack of outreach and education across the Navajo Nation. The attending community leaders called upon the NNDFW's Climate Change Program to continue their education and outreach efforts across the Navajo Nation. The Climate Change Program Team was encouraged to reach out to the youth by visiting schools, classrooms, and students to promote climate change resiliency and provide education. Multiple requests were made for improving communication and outreach, and a final report outlining the overall outcome of the Climate Change Adaptation Workshops. The report will be used to share the knowledge the community leaders acquired as well as a platform to host their own workshops within their communities. This is but one example of how the community leaders have already implemented solutions for our Climate Change Adaptation Plan initiative.

During the workshops it was stated to DNR Executive Director, Bidtah Becker, by multiple community leaders that they admired the work which the Climate Change Program Team accomplished. The community leaders requested a permanent Climate Change Program within NNDNR. The NNDFW's Climate Change Program will continue its outreach efforts, visiting chapter houses, public events, and potentially schools across the Navajo Nation, to further promote education on climate change. Bidtah Becker concurred on the need for a permanent Climate Change Program and requested community leaders assistance in locating funding for the program.

#### Phase 5: Monitor, Evaluate and Adjust

Once the Climate Change Adaptation Plan is created it is considered a living document in which can be changed, revised and updated with data and scientific research. The level of priority given to each specified adaptation measure needs to take into account the immediacy of the threat, the resources available, the vulnerabilities of the location, and community expectations.

Some effects of climate change may present extreme risks that are unlikely to occur; other risks may not require attention until sometime in the future, even though they may already be affecting the Navajo Nation's operations.

Climate change threats addressed in a typical adaptation plan include emergencies (such as wildfires, more frequent storms, heatwaves and flooding) or longer term issues (such as rising average



temperatures, water availability). Adaptation is a repetitive process. Every measure will need to be monitored and reviewed as understanding of climate risks alters or as priorities change. For example, because of: new or improved climate data becoming available, changes to community demographics, changes in technology lowering implementation costs, and new regulatory or legislative obligations or requirements. If a change occurs then NNDNR may adjust and tailor the existing plan for a more effective adaptation plan.

The need for community involvement is also another factor that is essential and needs to be continued throughout the duration of decision making and Climate Change Adaptation Planning. For example the implementation of youth groups and conservation workers may be a great asset to get observations and information from the community on the ground. Input from employed natural resource professionals within NNDNR and community grazing officials, land board members, and farm board members have been collected. The goals of a climate change adaptation plan is to initiate a standard practice in all natural resource organizations on Navajo Nation, just as workplace health and safety practices have become integrated.

### Presentations:

#### *What is Climate Change?*

On Day One of The Climate Change Adaptation Workshops a presentation overview of "What is Climate Change" was presented by the NNDFW's Climate Change Program, Carolynn Begay, Taylor Silva and John Begay. The overview consisted of a short introduction on climate changes on the Navajo Nation. Attendees were then asked if they knew what climate change was but many did not understand. After they were asked if the attendee's communities were affected they had more individuals raise their hands. From that point on they informed the community leaders about the causes of climate change, what it will be affecting and ending with adaptation strategies.

#### *Climate Change Adaptation Planning Process*

On Day Three of the Climate Change Adaptation Workshops a presentation of what the climate change adaptation planning process was presented by Leanna Begay of ITEP and John Begay of NNDFW. The presentation is used by ITEP's Climate Change Program. The purpose of the presentation is to provide a step-by-step process on how to create a climate change adaptation plan. There are five steps followed in order to create the adaptation plan that are demonstrated in Figure 1, Page 6. The presentation provided a lot of resources to create a climate adaptation plan such as the adaptation planning tool kit on the ITEP website<sup>3</sup>. The presentation also gave some information on other tribes that have completed adaptation plans. The purpose of showing what other tribes have completed, is to get the Navajo Nation more aware of how smaller tribes have plans to mitigate and adapt to climate change. This will initiate the Navajo Nation to create a climate adaptation plan of our own.

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<sup>3</sup> For more information about the adaptation planning tool kit,  
<http://www7.nau.edu/itep/main/tcc/Resources/adaptation>



### Conclusions and Next Steps

On the final day of each workshop, attendees from the Flagstaff workshop stated they wanted permanent climate change staff to provide outreach and education on climate change, as well as, the adaptation plan for their communities. Attendees from the Nenahnezad workshop spoke about collaborating with the NNDFW's Climate Change Program, to give information about Climate Change translated into Navajo for their communities to fully understand. We also had several attendees bring up traditional knowledge and how we could incorporate past knowledge with modern adaptation strategies to conserve our natural resources.

"That is why we come to you the community leaders who are at the forefront of our natural resources."

-Gloria Tom

"Thank you Department of Fish and Wildlife for creating this workshop and asking for our opinions."

-Navajo Community Leader

During the closing remarks NNDNR Director, Bidtah Becker, exclaimed the importance of conservation for the Navajo Nation, to begin implementing climate change solutions, to protect the future generations of our people. The attending community leaders conveyed they wanted to pass on the information they gathered from the workshop to the community level.



## Appendix

### Appendix A-1: Flagstaff Workshop Planning Team

Gloria Tom	Navajo Nation Department of Fish and Wildlife
Carolynn Begay	Navajo Nation Department of Fish and Wildlife
Taylor Silva	Navajo Nation Department of Fish and Wildlife
John Begay	Navajo Nation Department of Fish and Wildlife
Eddie Benally	Navajo Nation Department of Fish and Wildlife
Chad Smith	Navajo Nation Department of Fish and Wildlife
Terilyn Yazzie	Navajo Nation Department of Fish and Wildlife
Carlee McClellan	Navajo Nation Department of Water Resource
Wilfred Big	Navajo Nation Department of Agriculture
Kimberly Johnson	Navajo Nation Department of Agriculture
Edison Emerson	Navajo Nation Department of Fish and Wildlife
Vangie Curley-Thomas	Navajo Nation Division of Natural Resources

### Appendix A-2: Nenahnezad Workshop Planning Team

Gloria Tom	Navajo Nation Department of Fish and Wildlife
Carolynn Begay	Navajo Nation Department of Fish and Wildlife
Taylor Silva	Navajo Nation Department of Fish and Wildlife
John Begay	Navajo Nation Department of Fish and Wildlife
Eddie Benally	Navajo Nation Department of Fish and Wildlife
Chad Smith	Navajo Nation Department of Fish and Wildlife
Terilyn Yazzie	Navajo Nation Department of Fish and Wildlife
Carlee McClellan	Navajo Nation Department of Water Resource
Edison Emerson	Navajo Nation Department of Fish and Wildlife
Vangie Curley-Thomas	Navajo Nation Division of Natural Resources
Charmaine Hosteen	Navajo Nation Department of Agriculture
Melinda Ciocco	Navajo Nation Historic Heritage Program Department

### Appendix B-1: Flagstaff Participant List

Fist Name	Last Name	Community	Title
Steven	Arizana	Tuba City	Grazing Committee
Calvin	Begay	Coppermine	Grazing Committee
Irene	Begay	Forest Lake	Grazing Committee
Juan	Begay Jr	Pinon	Grazing Committee
Allen	Jones	Leupp	Grazing Committee
Steven	Kee	Ganado	Farm Board
Vicki	Kee	Tonalea/Red Lake	Grazing Committee
Lucille	Krause	Cameron	Farm Board
Francis	Lester	White Cone	Grazing Committee
Priscilla	Mann	Kaibeto	Grazing Committee



Navajo Nation Climate Change Workshop  
Community Leaders

Jonathan	Manygoats	Dilcon	Grazing Committee
James	Parrish	Kayenta	Farm Board
Irvin	Shirley	Nazlini	Grazing Committee
Aaron	Simonson	Hard Rock	Grazing Committee
Russell	Smallcanyon	Navajo Mountain	Grazing Committee
Jack	Smith	Houck	Grazing Committee
Bill	Spencer	Greasewood Springs	Grazing Committee
Eugene	Tso	Chinle	Grazing Committee
Steven	Tsosie	Cottonwood/ Tselani	Grazing Committee
Happy	Begay	Inscription House	Grazing Committee
Lee	Yazzie	Bodaway/Gap	Farm Board
Marilynn	Yazzie	St. Michaels	Grazing Committee
Herbert	Zahne	Bodaway/ Gap	Farm Board

Appendix B-2: Nenahnezad Participant List

First Name	Last Name	Community	Title
Jonah	Barney	Mexican Springs	Grazing Committee
Leonard	Becenti	Naschitti	Grazing Committee
Dondi	Begaye	Red Lake	Farm Board
Henrico	Benally	Red Mesa	Grazing Committee
Harrison	Cly	San Juan	Farm Board
Reederson	Dee	Lukachukai	Grazing Committee
Douglas	Diswood	Gadiihi	Grazing Committee
Harold	Dodge	Nenahnezad	Grazing Committee
Lorena	Eldridge	Tsaile/Wheatfields	Farm Board
Lawrence	Gould	Newcomb	Grazing Committee
Paul	Houston	Jones	Dis. Land Board
		Ranch/Manuelito	
Kenneth	Johnson	Dennehotso	Grazing Committee
Derry	Lewis	Toadlena-Grey Hills	Grazing Committee
Rodger	Martinez	Ramah	Land Board
Kee Y.	Randall	Cove	Grazing Committee
David	Tsosie	Tolikan	Grazing Committee
Teri	Watchman	Rock Springs/Tsayatoh	Dis. Land Board

Appendix C-1: Flagstaff and Nenahnezad Agenda

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## Navajo Nation Communities Climate Change Planning Meeting:

### Natural Resource Priorities for Climate Change Adaptation Planning



*March 20 - 22, 2018*  
*NAU's Native American Cultural Center (NACC)*  
*Flagstaff, AZ*

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1. Meeting Objectives:

- a. Brainstorm a list of natural resource issues
- b. Create a priority list of natural resource issues
- c. Create a plan for climate change adaptation planning process:
  - Compile a list of actions, timeline and points of contacts
  - Create a plan for climate change adaptation planning process with data generated

<i>Day 1</i>	<i>Agenda Item</i>	<i>Facilitator/Speaker</i>
<b>Tuesday</b>		
12:00 pm	Arrive & Sign-In	<i>All</i>
1:00 pm	Invocation	<i>Wilfred Big, Department of Agriculture</i>
1:10 pm	Welcome	<i>Bitah Becker, Executive Director, DNR</i>
1:20 pm	Workshop Overview	<i>Gloria Tom, Director, Fish and Wildlife</i>
1:30 pm	Introductions/Video/Icebreaker	<i>Gloria Tom, Director, Fish and Wildlife</i>
2:30 pm	Presentation: What is Climate Change	<i>Carolynn Begay/John Begay/Taylor Silva, Fish and Wildlife</i>
3:15 pm	Break	
3:30 pm	Breakout Session 1 (4 Groups): How Does Climate Change Affect My Community?	<i>All</i>
4:15 pm	Report Back on Breakout Session 1 (10 min/group)	<i>All</i>
5:00 pm	Adjourn	<i>All</i>

<i>Day 2</i>	<i>Agenda Item</i>	<i>Facilitator/Speaker</i>
<b>Wednesday</b>		
7:30 am	Arrive & Sign-In	<i>All</i>

Navajo Nation Climate Change Workshop  
Community Leaders

8:00 am	Recap	<i>Gloria Tom, Director, Fish and Wildlife</i>
8:30 am	Breakout Session 2: Natural Resource Management Concerns	<i>All</i>
10:00 am	Break	<i>All</i>
10:15 am	Determine Common Areas of Natural Resource Concerns	<i>All</i>
11:15 am	Vote on Top 10 Natural Resource Issues	<i>All</i>
12:00 pm	Lunch	<i>All</i>
1:30 pm	Unveil the "Top 10"	<i>All</i>
2:00 pm	Unveil DNR's Natural Resource Management Concerns	<i>All</i>
2:30 pm	Merge Natural Resource Management Concerns/Discussion	
3:00 pm	Break	<i>All</i>
4:00 pm	Breakout Session 3: Fish Bone Exercise: Cause/Effect: Top 6 Merged NR Management Concerns	<i>All</i>
5:00 pm	Adjourn	<i>All</i>

<i>Day 3</i>	<i>Agenda Item</i>	<i>Facilitator/Speaker</i>
<b>Thursday</b>		
7:30 am	Arrive & Sign-In	<i>All</i>
8:00 am	Recap	<i>Gloria Tom, Director, Fish and Wildlife</i>
8:15 am	Report Back on Fish Bone Exercise (10 min/group)	<i>All</i>
9:00 am	Presentation: Climate Change Adaptation Planning Process	<i>ITEP (Invited)</i>
10:00 am	Break	<i>All</i>
10:15 am	Develop Management Actions/Strategies w/Timelines, Responsible Person(s)	<i>All</i>
11:30 am	Next Steps, Assignments Closing Remarks	<i>Gloria Tom, Director, Fish and Wildlife</i>
12:00 pm	Wrap Up & Adjourn	<i>All</i>

**Flagstaff Facilitation Teams:**

1. Kim Yazzie, NNDFW /Wilfred Big, NNDA



2. Taylor Silva, NNDFW /Carlee McClellan, Water Resources
3. John Begay, NNDFW /Edison Emerson, NNDFW
4. Chad Smith, NNDFW /Eddie Benally, NNDFW

**Nenahnezad Facilitation Teams:**

1. Kim Yazzie, NNDFW /Charmaine Hosteen, NNDA
2. Taylor Silva, NNDFW /Carlee McClellan, Water Resources
3. John Begay, NNDFW /Edison Emerson, NNDFW
4. Chad Smith, NNDFW /Eddie Benally, NNDFW

Appendix D-1: Flagstaff- How is Climate Change affecting my community?

Group 1

Whitecone:

- Increase of wind/vegetation breaks
- Artesian wells decrease

Ganado; erosions- no farming/ because weeds

Dilcon; lack of vegetation -> sedimentation- filling up water c

Catch water

Stronger small tornadoes- spring (warmer)

Increased water evaporation rates troughs

Warming of local geomorphology (rocks)

Invasive plants-salt cedar

Changing growing/plant season based on constellation movement

Native plants being cut down at younger stages

Acidic soil

Dune migration

Domestics movement over dunes

Well water- not sweet

Decrease snow

Modern convenience- easy, less walk

Vehicles more in communities

Blowing snow

Road development

Livestock feeding at different times due to wind/ heat/ cold

Mineral licks at springs

Drilling aquifers- deeper

Less H2O recharge

Cutting into ravines- erosion

Illness- Flu, colds, dry skin, kids & elderly affected by change

Pests/Insects increased by temperature

Economic changes due to animal feed & needing water.



Navajo Nation Climate Change Workshop  
Community Leaders

Group #2	
-A lot of run off, no one addressing them	
- Earth dams- dry out	
-No water	<div>-Livestock die from lack of water &amp; malnutrition</div> <div>-Horses die and Wildlife</div>
-Windmills- No water (water levels low)	
-Sand dunes – on roads	
-A lot of horses -eating up grasslands, chasing off livestock (cows) away from water.	
-Sand dunes covering up plants (grass)	
-Gardens-sand is loose	
- less snow on mountain	
-lack of moisture for our livestock – lead to malnutrition	
-Tuba city burning a lot of coal	
- Lack of EPA enforcement- Power plants, by pass filtrations at night.	
-Contamination of runoff, off mountains into water	
-More communication to communities- there is a disconnect from chapters to community needs	
- problems stay unresolved	
-Language boundaries- Navajo	
-Invasive species – Snake weed	
-No regulations on hay	
-taking up water from native plant species	
-Lack of infrastructure for farmers	
- Problems with jurisdiction of the land. Boundary war w/chapters	
-Majority of farmers on BIA land	
-Problem is they don't have farm board.	
-Land status	
-Communities themselves don't want to pay for water	
- Navajo Mountain has best water association	
-We need solar & windmills we don't have that anymore	
- No wind breaks	
-cut down too many trees, w/o re-planting	
-People cutting down trees by farms, thinking they are taking up water- but just causes more erosion	
- Tuba-health issue; flu increase	

Group 3 – Day 1

How is climate change affecting your community?

- Desertification
- Water availability (gets political over communities wanting access to water)
- Pests (spiders, snakes, lizards, mice, etc.)



Navajo Nation Climate Change Workshop  
Community Leaders

- Invasive species/ noxious weeds
- Soil quality
- Crops are not growing as well (corn, squash, melons, fruit trees)
- Feral horses
- Wildlife in developed areas (black bears, wild turkeys, raccoons, porcupines, mountain lions)
- Native wildlife disappearing
- Feral dogs
- Poaching of wildlife
- Health problems for humans and animals (flatworm, pinworm, fluke worm)
- Trash (illegal dumping)
- Mosquitoes
- Worms (flake worms)

Group 4

Chapters-

Greasewood

Coppermine

Nazlini

Pinon

Tuba City

Kayenta

Ganado

How Climate Change affects my community?

- Changing weather patterns
- Water holes drying out-> more trespass competition over water
- Erosion
  - Washes are deeper
- Cutting green trees
- Invasive species
  - Salt cedar using water
- Fire ants
- Seeing less wildlife
- More roads (ATVs)
- Decreased of livestock
- Utility rights of way
  - Not being reseeded
    - Erosions
- Costing more money
  - Buying hay
  - Hauling water



Navajo Nation Climate Change Workshop  
Community Leaders

- People bringing animals closer to communities
- Windmills not working
  - Lots of animals impacting a few places
- Wildlife moving into community areas
- Natural plant + insect cycles out of sync
- Ceremonies being lost, not practiced during the right season
- Haphazard home site development
  - Encroaching on grazing land
- Soil contaminants spreading in the dry wind and dust
- Not caring for livestock
- Need to take community planning more seriously
- Natural springs disappearing
- Not enough plants, replenish oxygen
- FERAL HORSES
- Need for livestock detriments/reductions
  - Resting land
- Maintaining fences to rest land
- Canceling unusual permits

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Appendix D-2: Nenahnezad- How is Climate Change affecting my community?

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Group 1

Chapters: Naschitti, Navajo, Sweet water, Little water/ Crownpoint, Ramah

- Ground H2O-wells deeper
- Elk populates Ramah-Deer moved
- Radon out effects= teaching
  - Vegetation- depletion/ over grazing
- Navajo- deeper artesian wells
  - Medicinal plants (awéé tsaal)
- Horses/ over population
- Uranium effecting H2O source
- Walk/pumping out uranium/radon present
- Loss of language- Dine Bizaad (ranger generation)
  - Prayers
  - Oral history
  - Stories
  - Belief
  - Direct affects
- Talking w/ no action will not work
- Funding to communities/resource/tools
- Not doing traditional ceremonies
  - Offerings
  - Forgotten ourselves



- Forgot our way of life
- religion
- Reconnection to mother nature
  - Yellow corn pollen
  - White corn pollen
- No snow
  - Black lake wash less water
- Less H2O in local areas
- Soil is being blown away
  - Less vegetation
- Localized snow/rainfall
- Dams being filled in with dirt
- H2O runs down the land fast
  - Not held back
  - Rain (moisture) less
- Land is not being taken care of (horses)
- Boundaries not respected by others
  - Animals not eat (overgraze)
- Motorized traffic cutting into land
- Localized funding to help round up horses
- Work with the grazing permittees for compliance/ livestock
- Enforcement/ regulations
- Need community collaborations with local and government
- Ownership / responsibility / obligations
  - Resources community
- Emergency fund and H2O
- Training (lack of) livestock, ownership, oriented training
- Local stewardship
- Working with water resources
- Motivation to do better
  - Improve surroundings
- Sand dune/ sand
- Less vegetation
- Increased tumble weeds
- Native vegetation
- Erosion
- Resources / who to call?
- Animals lesser used
- Water contamination at wells/ water sources/ water quality
- Wells broken/ needs repairs
- Water catchments= recharge water source

Prayers



Group 2

- Low water table
- Wells are dry/ windmills
- Too many livestock
  - Overgrazing
- Too hot
- Too much deer
  - Lukachukai
- Sand dunes
  - Mexican Springs
  - Horse trail rides
  - Walking side by side
- Erosion
  - Iyanbito
  - Making too many roads: wood cutters, to homes, forest roads
- Low river flow
- No snow
- Non-permittee livestock owners
- Higher population
  - More traffic on reservation and communities
  - ATVs
- Losing our traditional ways of life
  - And who we are as holy people
- Sheep herding w/ ATVs
  - Automobiles
- Lack of education: Climate Change
- Illegal burning
  - Trash
- Dumping
- Wind erosion
- Fragmentation
- Loss of Native plants/ food e.g.: onions, yucca, medicinal plants
- Wildlife migration e.g.: roadrunners
- Seasonal change
  - Temperature anomalies
- Traditional astronomical changes
- Air pollution
- Lack of sustainability on the Navajo Nation
- Noxious weeds
  - No regulation on hay on Navajo Nation
- Invasive plant



Navajo Nation Climate Change Workshop  
Community Leaders

- Russian olive, Salt Cedar
- Illegal home sites- more erosions making new roads
- Lack of clean power
  - Solar, wind, tables
- Uranium mines
  - Abandoned
- Sweetwater
  - Water contaminated from uranium, oil, and arsenic, benzene
- Lack of recycle plants/ bins

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Group 3

Chapters: Ganado, Nenahnezad, San Juan, Tsaile, Wheatfields, Hogback, Rock Springs, Tsayatoh, Tse Bonito

- Invasive species
  - Livestock trespass
  - Impacts farmlands
  - Increases malnutrition for livestock
- Pests (ticks, mosquitoes, prairie dogs, flies)
- Water
  - Earthen dams need clean-up
  - Artesian wells reopen
  - Windmills, wells, dams
  - Community dispute over windmills/ access to water
  - Effects economy
- Drought
  - Families traveling far to haul water
- Predators (mountain lions, cougars)
  - Attacking livestock
  - Coming near homes
  - Leaves carcasses
- Increase in sand dunes
  - Land is moving away
  - Destroys ecosystem
- Too many roads
- Loss in cultural sites
  - Herbs
- Ancestral lands are in danger
- Regulations increase on permits land
- Overpopulation
  - Deer population increase
  - Elk population increase



Navajo Nation Climate Change Workshop  
Community Leaders

- 
- Contamination
  - Animal carcasses near wells
  - Wildfires
  - Education
    - People need to be educated on community concerns (natural resources climate change)
  - Cultural barrier
    - Youth don't speak Navajo and understand
    - Can't communicate scientific information well to elders
    - Re-educate youth with teachings
    - Tree cutting- re-educate people to not cut green healthy trees
- 

Group 4

Chapters: Newcomb, Red Mesa, Manuelito, Cove

Idle farmland- not enough water

- Captain tom reservoir empty

Cove- not enough snow pack

- Contaminated water

Ag → snow evaporates

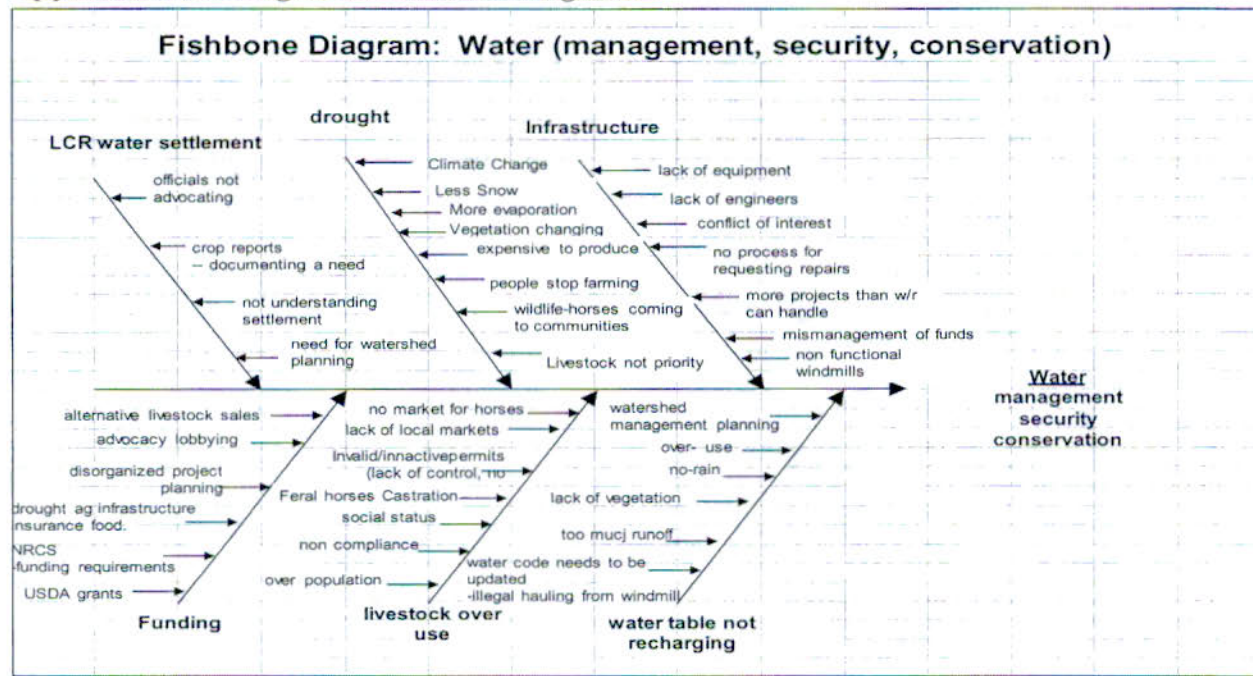
- Noxious weeds → fewer edible plants
  - HORSES
  - Small oil spills, exposed pipelines, burning waste methane, smell
  - Illegal dumping
  - Wildlife in communities
  - Younger kids not interested in farming or living off the land, (education)
  - Declining condition of livestock
  - Livestock moving more to find feed/water
    - Conflict
    - Competing with wildlife
  - Conflict among permittees
  - Sand, growing dunes
  - Erosion, land doesn't hold water
  - Cutting green trees
  - People not connecting Navajo cultural traditions with environmental science
  - Building too many roads (less plants more erosion)
  - Burning trash
  - Livestock overgrazing
    - Including feral horses
  - Deep rooted shrubs dying off
    - Loss of water holding capacity
  - Native plants replaced by woods
-



- Irrigation systems filling with sand
- Changing weather patterns
  - Wetter in the east, dryer here
- Hotter winters
- Higher populations

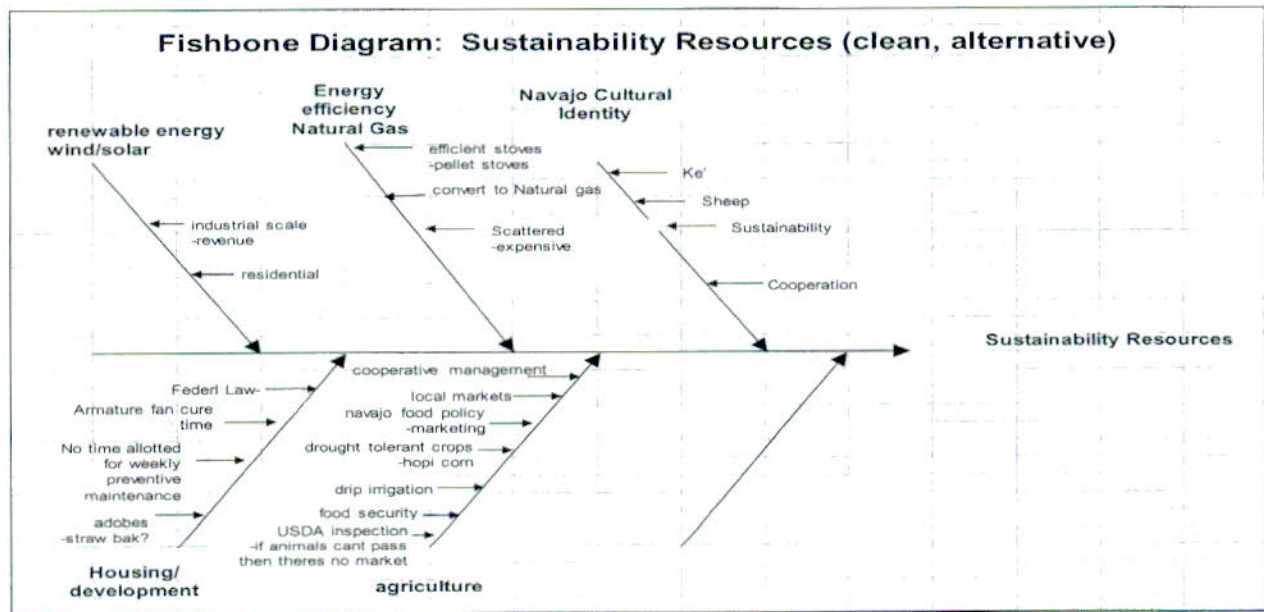
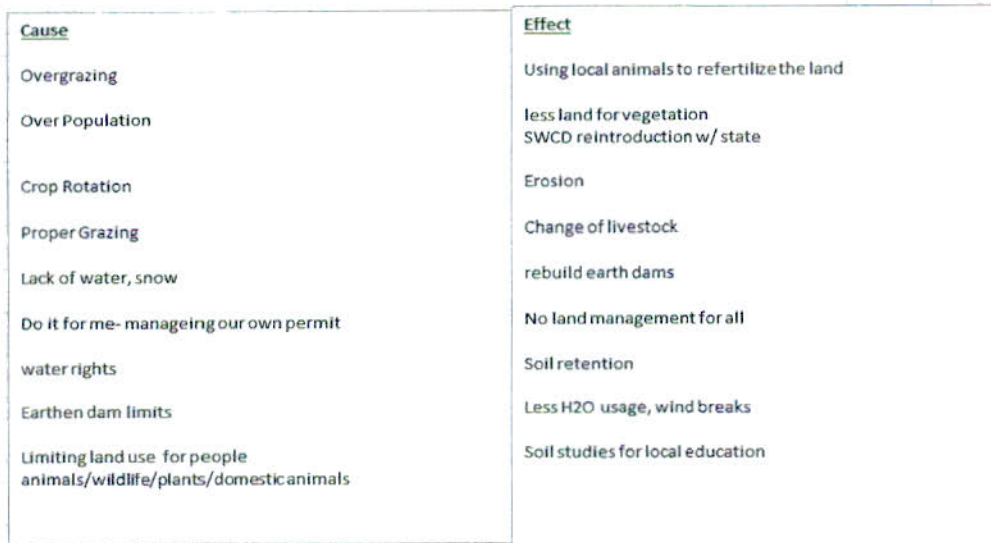
Drawn picture of the United States talking about "Balance"

## Appendix E-1: Flagstaff Fishbone Diagrams

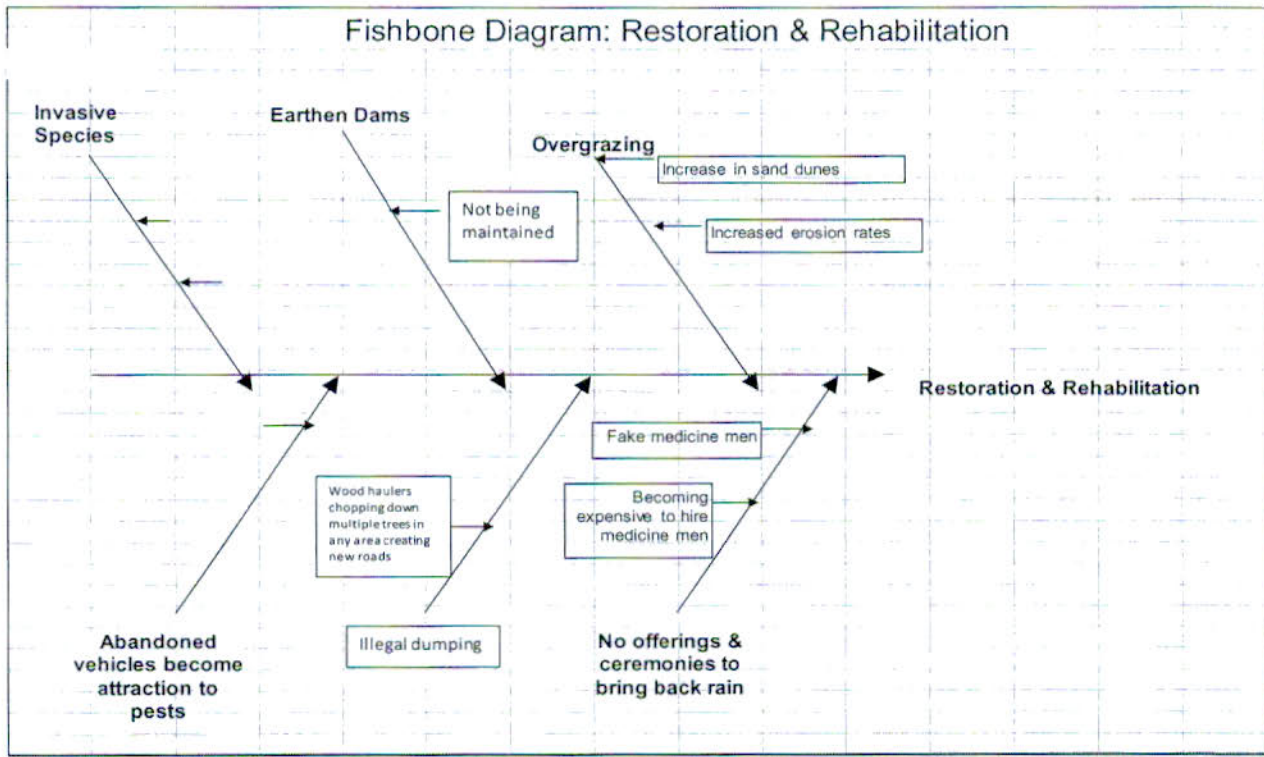




## Fishbone Diagram: Soil Conservation





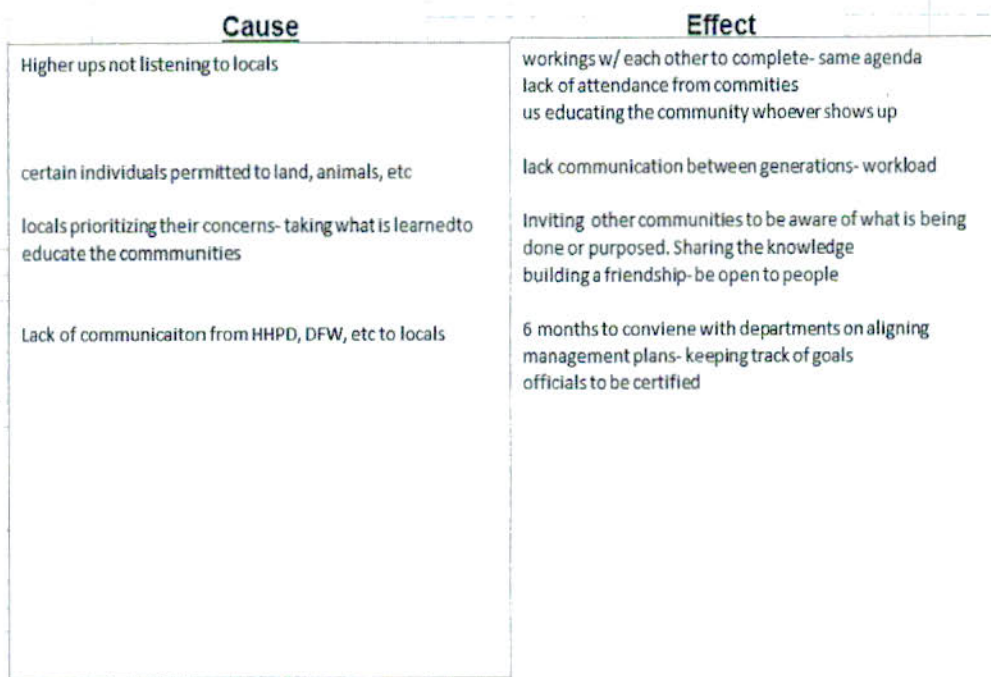


### Fishbone Diagram: Feral Horses

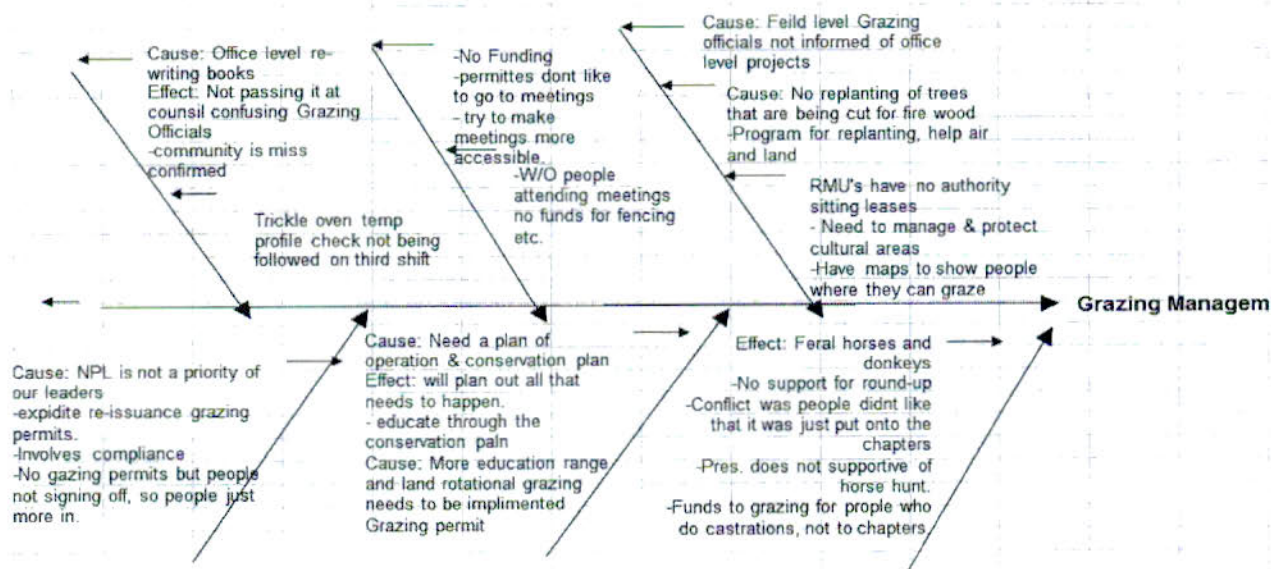
Cause	Effect
No brands due to lack of fencing, open range	employment off reservation, lack of reservation
family lacks in horse interests	lack of teaching, emotional, physical growth. Horse being less used- vehicle use increases
not maintained, herd health	castration training for officials (certification) having a "free" castration- incentives Co-sponsoring w/ animal control or other outreach/programs
only branding horses to be used	rounding horses up using contractors informing them of landscape- effective round ups local centered by animals making round up easier
Funding by tribe, adding incentives	management incentives
outside influences	horse meat market- free range meat



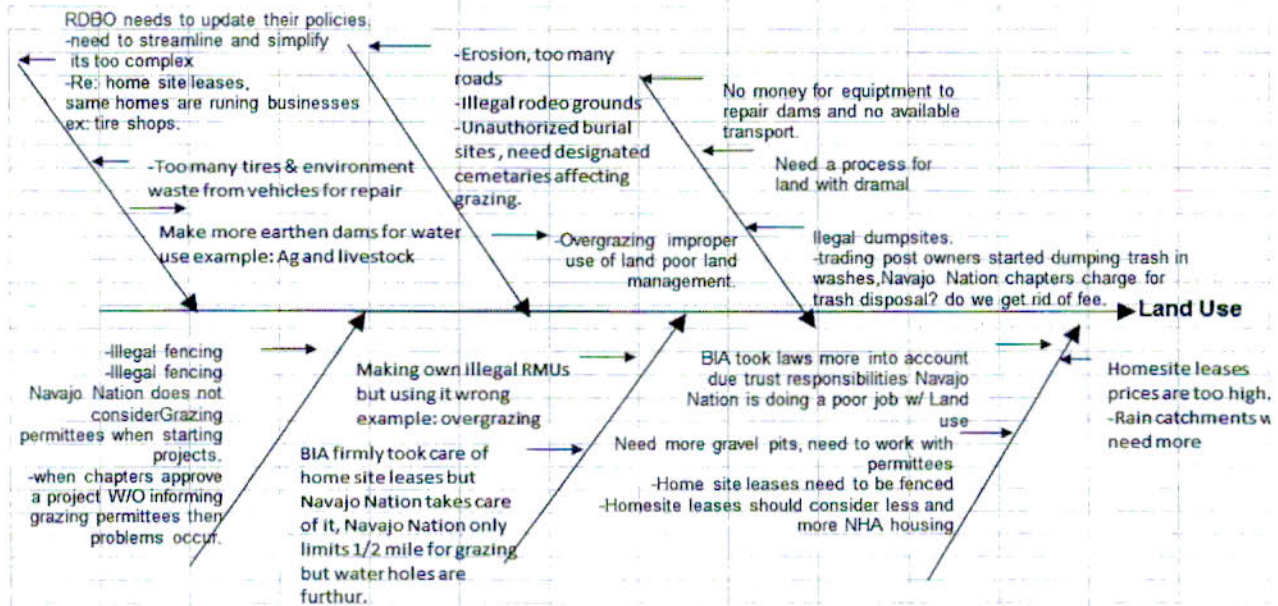
## Fishbone Diagram: Communication



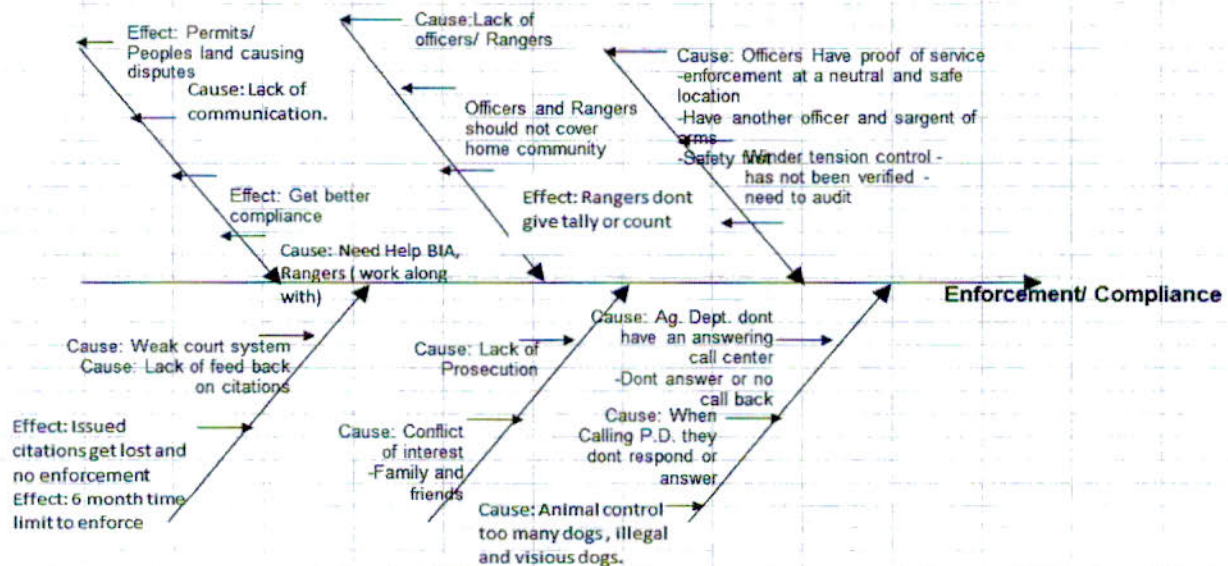
## Fishbone Diagram: Grazing Management



## Fishbone Diagram: Land- Use

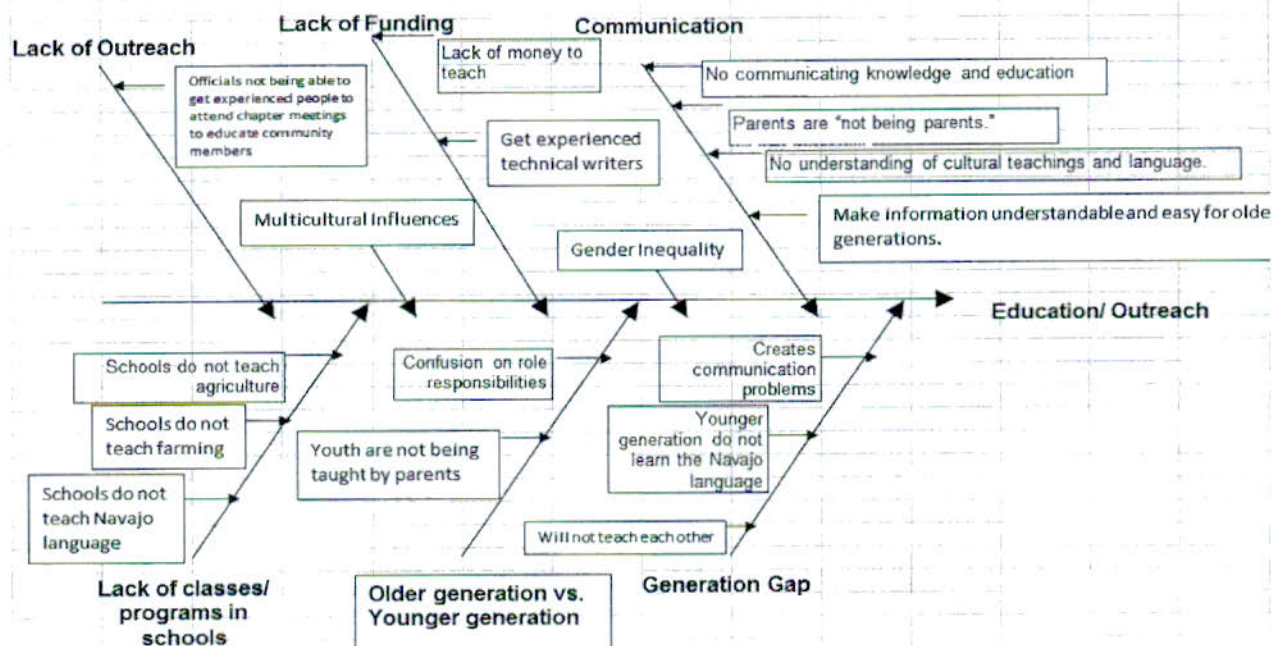


## Fishbone Diagram: Enforcement/ Compliance

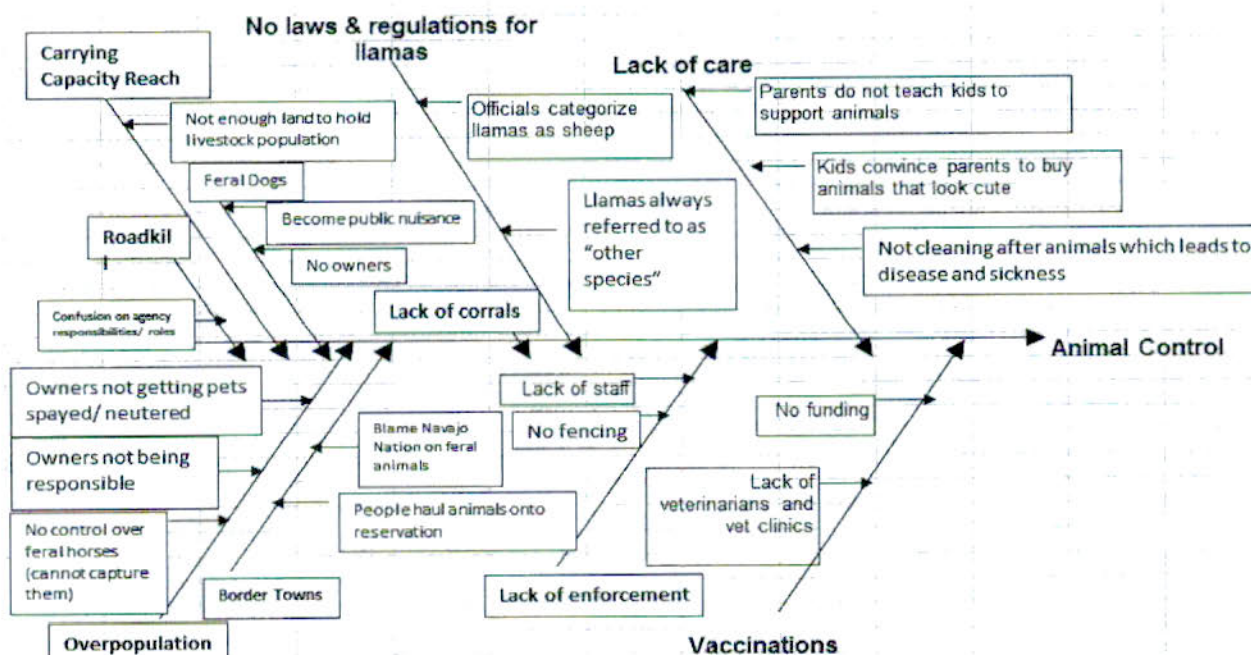




## Fishbone Diagram: Education/ Outreach

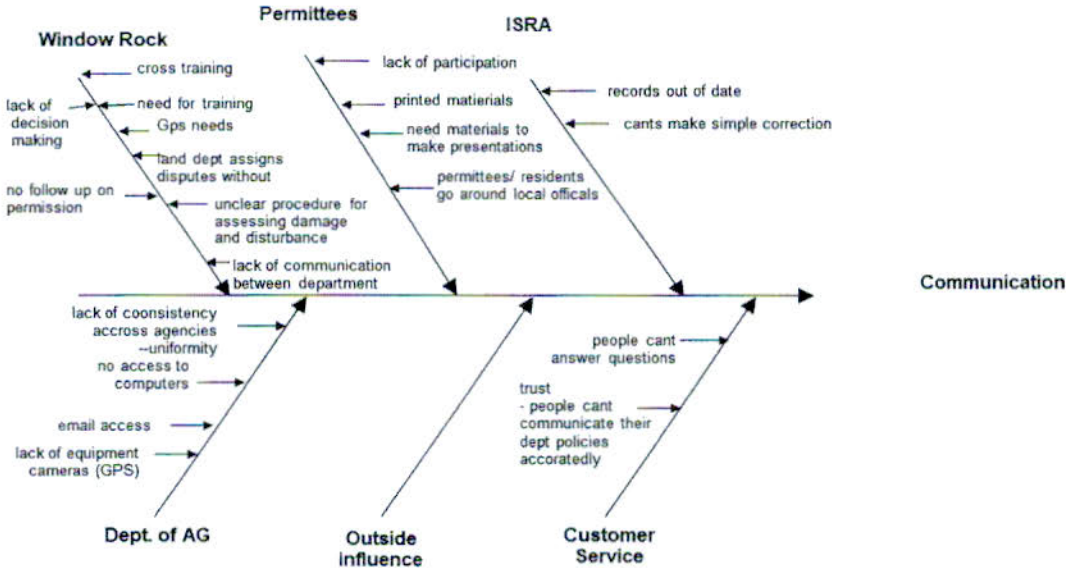


## Fishbone Diagram: Animal Control



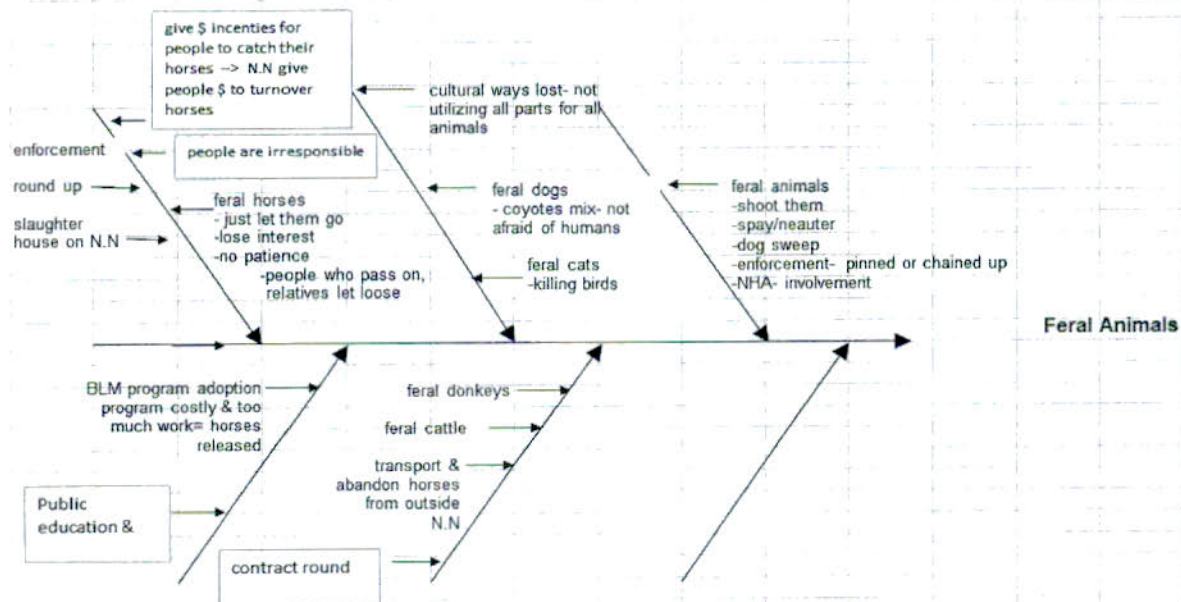
Appendix E-2: Nenahnezad Fishbone Diagram

**Fishbone Diagram: Communication**

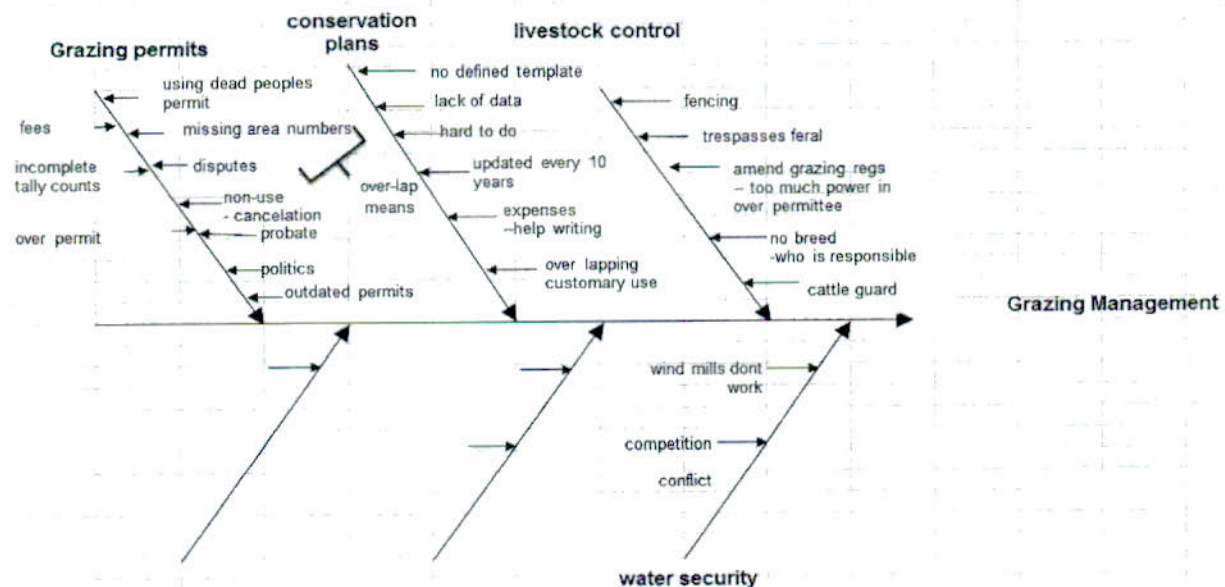




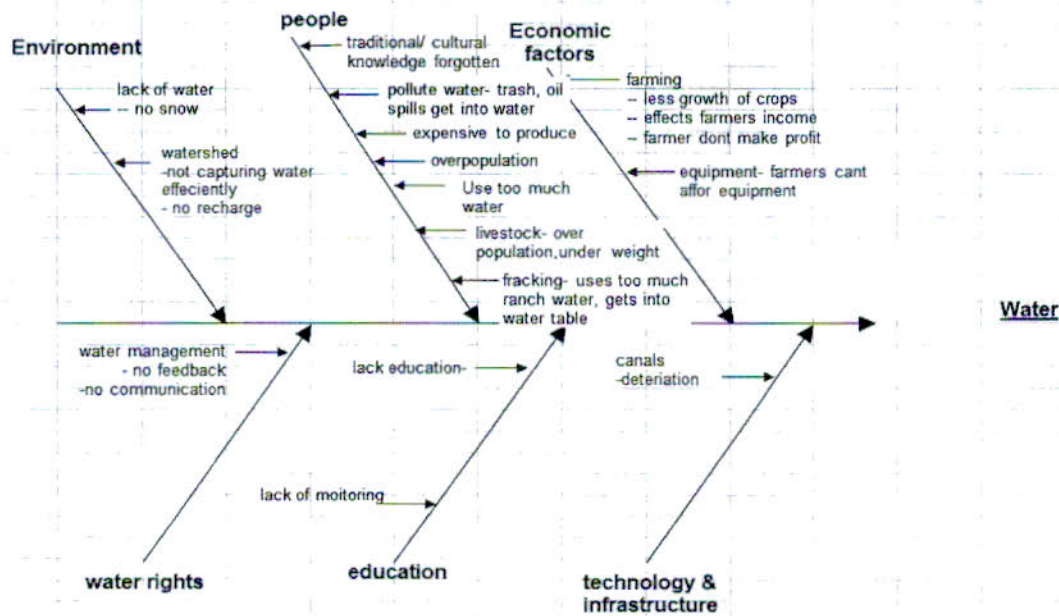
### Fishbone Diagram: Feral Animals



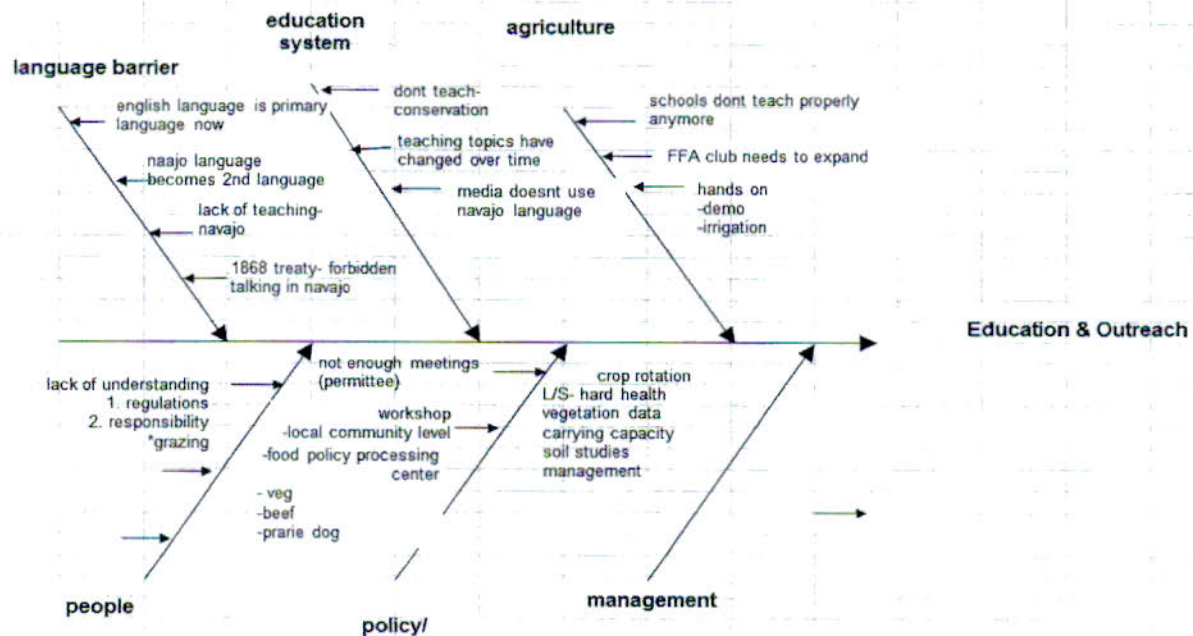
### Fishbone Diagram: Grazing Management



### Fishbone Diagram: Water

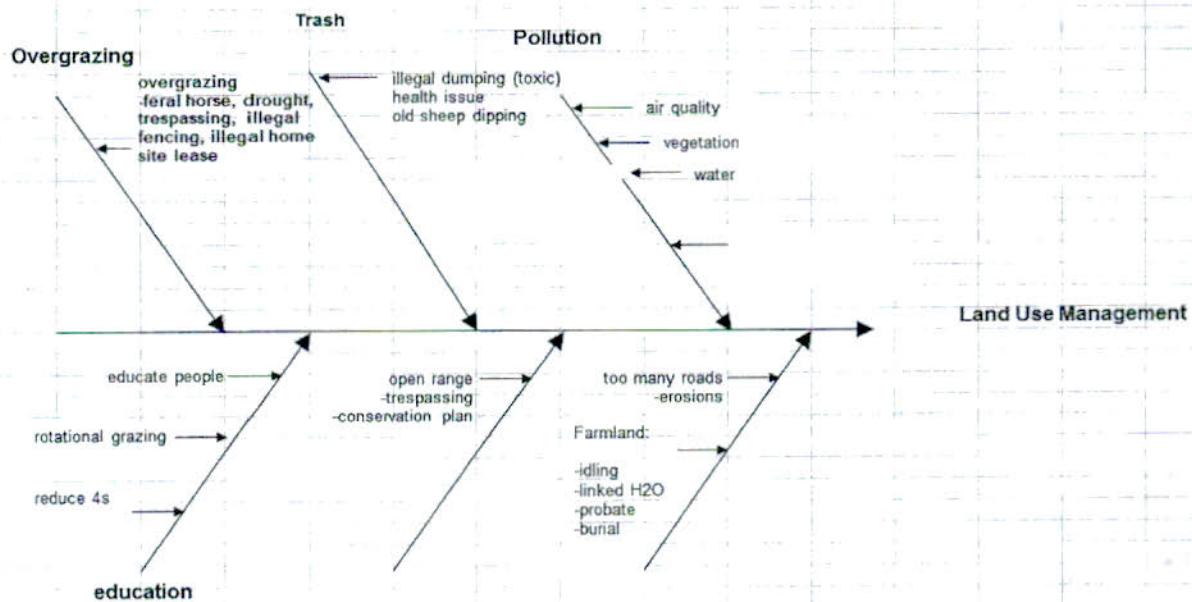


### Fishbone Diagram: Education & Outreach

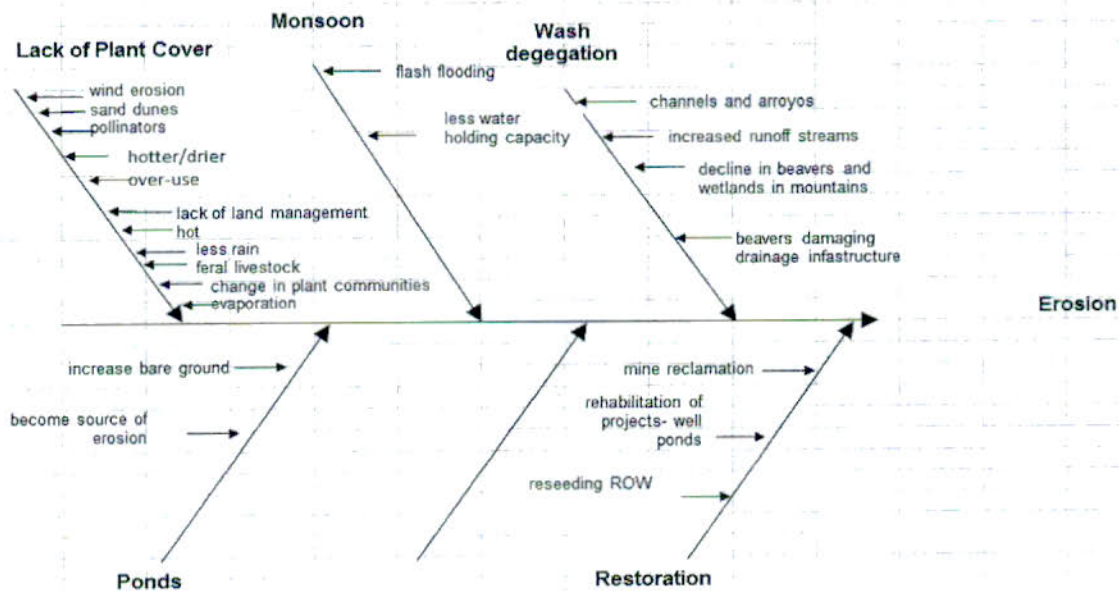




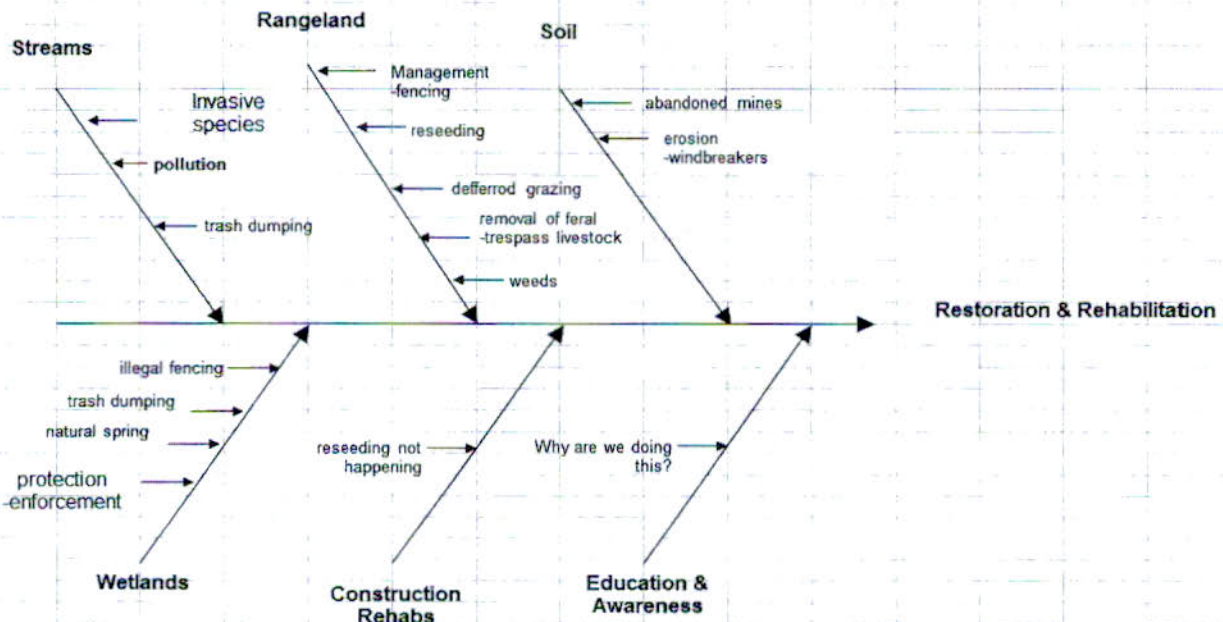
### Fishbone Diagram: Land- Use Management



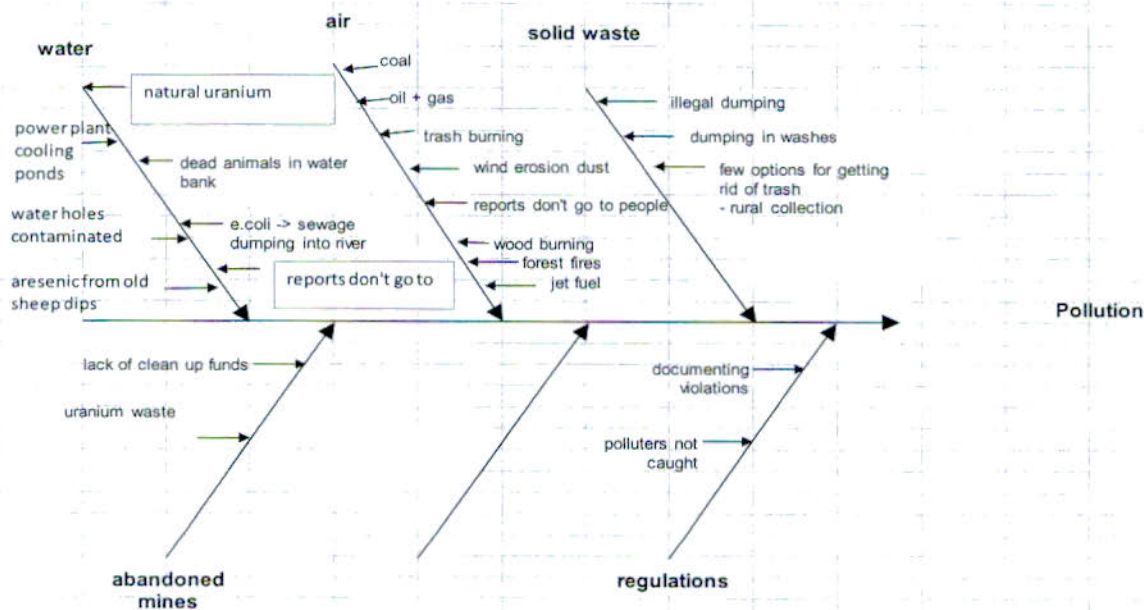
### Fishbone Diagram: Erosion



### Fishbone Diagram: Restoration & Rehabilitation

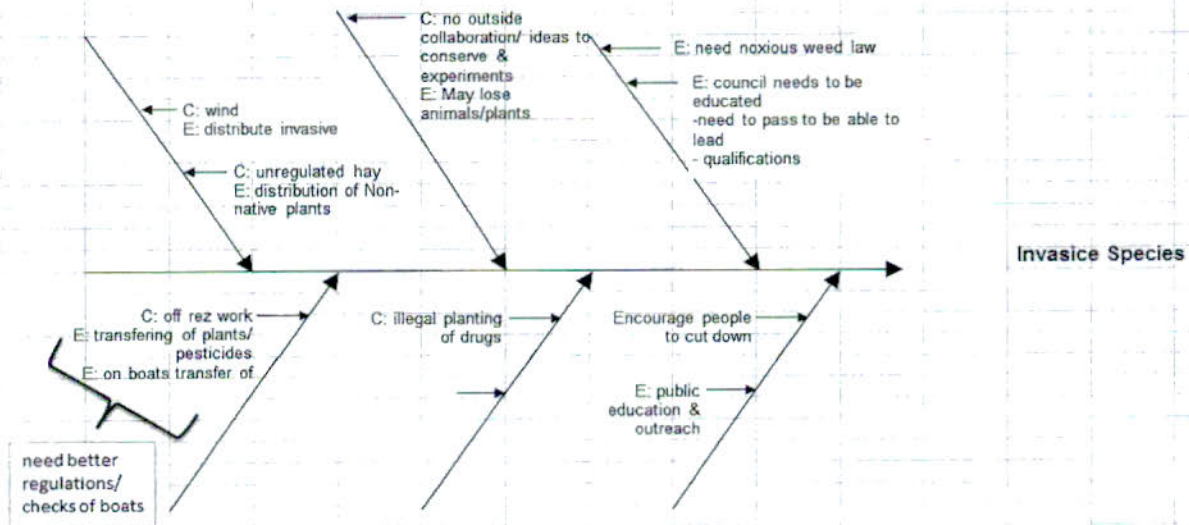


### Fishbone Diagram: Pollution

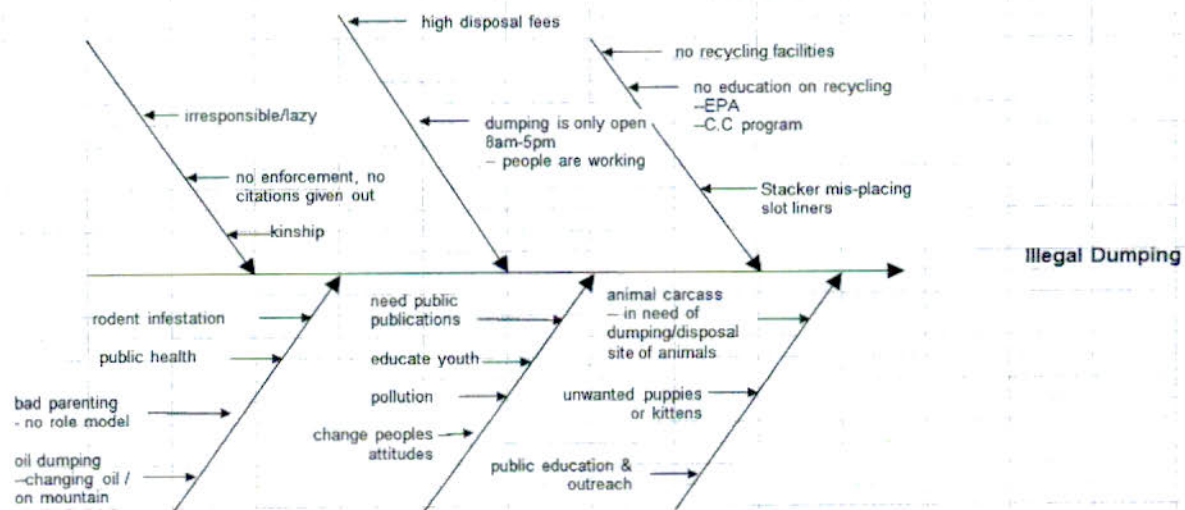




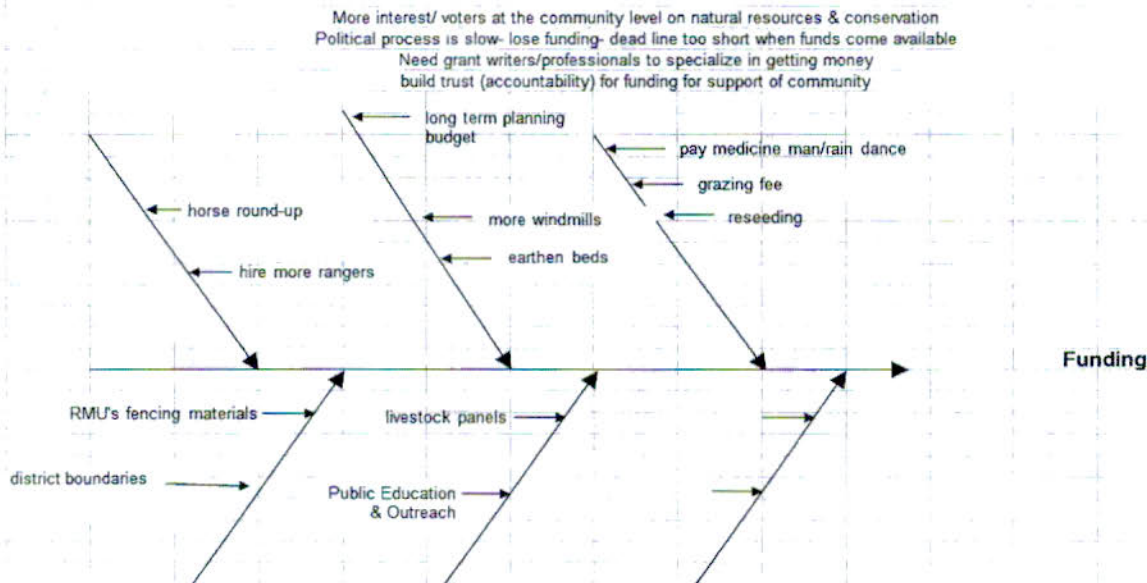
### Fishbone Diagram: Invasive species



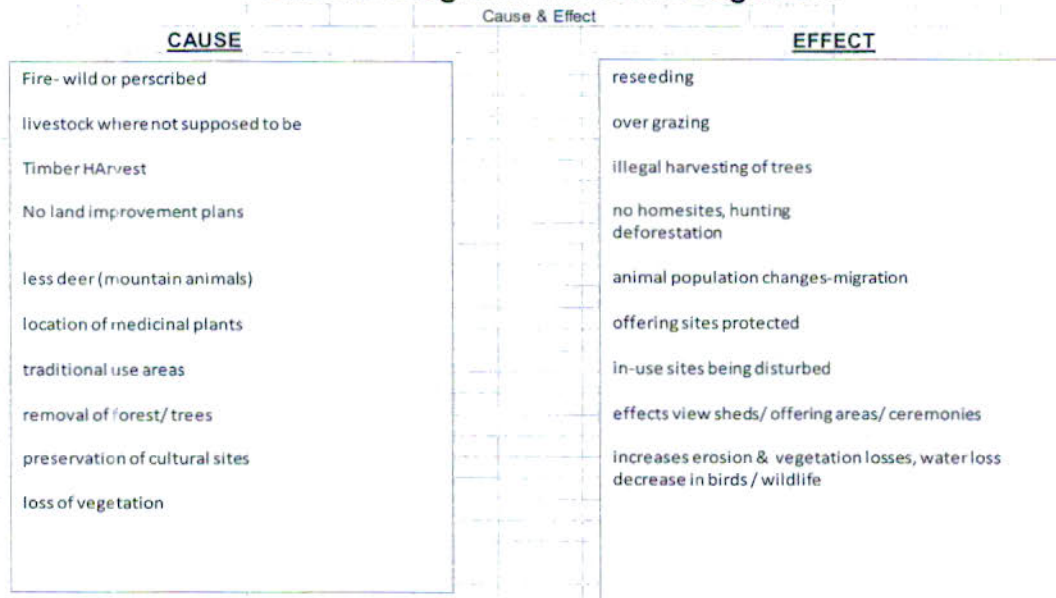
### Fishbone Diagram: Illegal Dumping



### Fishbone Diagram: Funding



### Fishbone Diagram: Forest Management





### Fishbone Diagram: Air Quality

Cause & Effect

#### CAUSE

Burning fossil fuels  
forest fire  
watershed  
perscribed burn  
mine blasting  
burning styrofoam  
burning plastic... trash  
vehicle emissions  
burning pressure treated wood

#### EFFECT

pollution: air quality  
smoke: haze  
soil crust doesn't allow vegetation  
soil runoff  
Indian rice grass- medicinal plant- regrowth takes time  
black lung- human health concern  
gasses released into air causing temperature change  
breathing concerns  
can cause cancer other health concern

### Fishbone Diagram: Animal Control

Cause & Effect

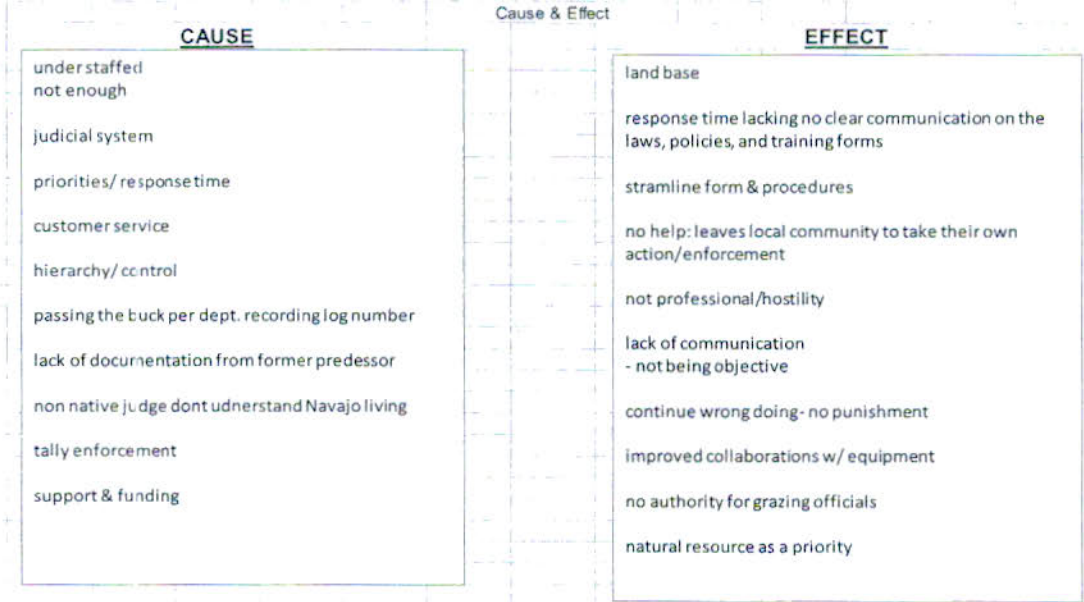
#### CAUSE

Wild dogs  
feral horses  
too many studs  
rabies, ticks, chiggers  
dead animals  
proper disposals (owners, rangers,,)  
animal dumping  
right aways  
lack of enforcement  
transport of dead animals  
no responsibility when an animal gets injured

#### EFFECT

kills sheep, livestock, cows, colts, children  
increase in horse population  
integrated local horses  
viscious dogs  
diseases  
castration  
flies... Insects carry bacteria  
jurisdiction priorities

Fishbone Diagram: Lack of Enforcement

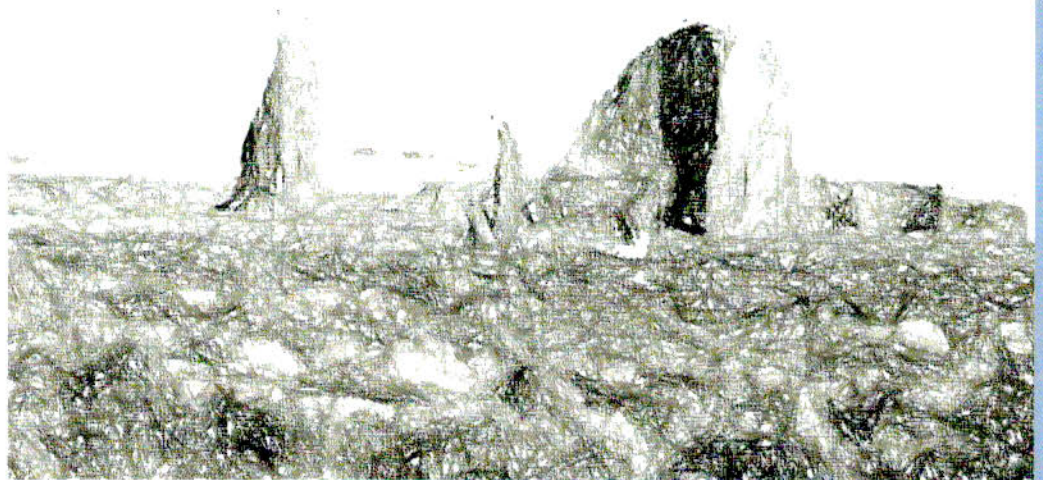






2018

# Climate Adaptation Plan for the Navajo Nation



Climate Change Program  
Navajo Nation  
Department of Fish and Wildlife  
December 2018

Authors of this Adaptation Plan:

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December 2018





Climate Change Adaptation Plan for the Navajo Nation  
Version 1  
December 20

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## Tribal Council Commitment

Resource Committee can approve when ready, do not erase.

## Acknowledgments

This project received financial support from the 2016 Bureau of Indian Affairs Tribal Resiliency Grant for Tribal Adaptation and Capacity Building. Many people participated in the development and preparation of this plan.

The Navajo Nation would like to acknowledge contributions of the following individuals:

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### *Additional Contributions:*

Institute for Tribal Environmental Professionals, Northern Arizona University  
Division of Natural Resources, Navajo Nation

### *Special thanks also to the following groups and individuals for their dedicated participation:*

District Grazing Committee, Navajo Nation Department of Agriculture  
Farm Board, Navajo Nation Department of Agriculture  
Navajo Land Board, Navajo Nation Department of Agriculture

Ahéhee'! (Thank you)



## The Navajo Nation Climate Change Vision Statement

To prepare the Navajo Nation to adapt to our changing climate, and implement strategies that will preserve and enhance natural resources and provide a resilient future for the Navajo communities by:

- Protect and enhance native species of both vegetation and animals, and;
- Establish and manage their natural habitats;
- Reduce, Reuse, and Recycle;
- Implement and enforce sustainable, long-term livestock management goals;
- Recognize vulnerable areas and prepare for natural disasters;
- Provide sustainable healthy food sources for a healthier lifestyle;
- Taking advantage of advanced technology to encourage innovation and create a more efficient and livable community;
- Protect and enhance watersheds;
- Cleaning up polluted areas;
- Implement natural resource management plans (fire, erosion, etc.), and;
- Educating the public.

## Key Terms

**Adaptation (climate change):** actions in response to actual or expected climate change and its effects, that lessen harm or exploit beneficial opportunities. It includes reducing the vulnerability of people, places, and ecosystems to the impacts of climate change.

**Adaptation Actions:** actions or activities that the tribe could take to achieve its climate change adaptation or preparedness goals.

**Adaptation Goals:** what the tribe wants to accomplish in the priority planning areas through adaptation or preparedness actions.

**Adaptive Capacity:** the ability of a system to accommodate or respond to the changes in climate with minimum disruption or cost. Generally, systems that have high adaptive capacities are better able to deal with climate change.

**Climate:** the "average weather" generally over a period of three decades. Measures of climate include temperature, precipitation, and wind.

**Climate Change:** any significant change in measures of climate (such as temperature, precipitation, or wind) lasting for an extended period of time (decades or longer). Climate change may result from natural factors and processes and from human activities that change the atmosphere's composition and land surface.

**Exposure:** The presence of people, assets, and ecosystems in places where they could be adversely affected by hazards.

**Global Warming:** average increase in the temperature of the atmosphere, which can contribute to changes in global climate patterns. Global warming can occur from a variety of causes, both natural and human induced.

**Greenhouse Gas (GHG):** any gas that absorbs infrared radiation in the atmosphere; examples include carbon dioxide, methane, nitrous oxide, ozone, and water vapor.

**Mitigation (climate change):** actions that reduce the levels of greenhouse gases in the atmosphere; includes reducing emissions of greenhouse gases and enhancing sinks (things that absorb more greenhouse gases than they emit). Examples include switching to renewable energy sources and implementing energy efficiency measures.

**Planning Area:** this is an area in which the tribal government manages, plans, or makes policy affecting the services and activities associated with built, human, and natural systems. For example, within the sector Utilities, you might have planning areas of Water and Electricity.

**Priority planning areas:** planning areas of particular importance to the tribal government or community which are vulnerable to climate change impacts.

**Resilience:** ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self-organization, and the capacity to absorb stress and change.

**Risk:** Risk= Consequence of an impact X Probability or likelihood that the impact will happen.



**Sector:** general grouping used to describe any resource, ecological system, species, management area, etc. that may be affected by climate change. For example, Transportation, Utilities, Water Resources, Forest Resources, Human Health, or Cultural Resources and Traditions.

**Sensitivity:** how much a system is directly or indirectly affected by changes in climate conditions (e.g., temperature and precipitation) or specific climate change impacts (e.g., sea level rise, increased water temperature). If a system is likely to be affected as a result of projected climate change, it should be considered sensitive to climate change.

**Vulnerability:** the susceptibility of a system to harm from climate change impacts. It's a function of how sensitive the system is to climate and the adaptive capacity of the system to respond to such changes. Generally, systems that are sensitive to climate and less able to adapt to changes are considered to be vulnerable to climate change impacts.

## Executive Summary

Impacts to the Navajo people, both directly and indirectly, won't be seizing so it is up to the people to adapt to the future changes. This ongoing change due to the climate around us is the reason the Navajo Nation Department of Fish and Wildlife (NNDFW) established the Climate Change Program and team. The purpose for the program is to spread awareness of climate change to the Navajo people. Several hours were spent visiting communities all over the reservation to present on impacts and suggested adaptive solutions for climate change. Along with presenting, the program distributed a climate change survey which community members were able to fill out at community events, schools, and chapter houses. This survey was also uploaded to the Navajo Nation Department of Fish and Wildlife's website for easier access. Overall, the team's main goal was to communicate with community leaders to create the Navajo Nation's first ever adaptation plan for climate change.

The Climate Change Program recruited several community leaders to assist in the assessment of vulnerabilities and impacts. At the beginning of 2018, the Navajo Nation Division of Natural Resource (NNDNR) planned a workshop with professionals. This workshop was the Professional's Workshop. Many of these professionals were field personnel rather than department managers. With the help of the Institute of Environmental Professionals (ITEP) to assist in facilitating the workshop, the NNDNR professionals were able to get their priority list together. This list shows was established

### NNDNR Professionals Priority List:

1. Overgrazing (feral horses, livestock)
2. Water Security (quality, quantity)
3. Land use management and planning
4. Interdepartmental collaboration and communication
5. Education, information and outreach
6. Enforcement

Figure 1. DNR Professionals' Priority List.

based on the natural resource concerns which each department of the Navajo Nation expressed concern for. Along with the priority list, many of the professionals had the opportunity to talk about adaptation strategies and what could be improved. Many of the attendees aspired to make the Navajo Nation a healthier land that their kids, grandchildren, and great grandchildren could grow up in.

In March of 2018, building off the NNDNR Professionals' Workshop, the NNDFW hosted two of its own workshops for community leaders, the Climate Change Workshop. The participants consisted of Navajo Nation District Grazing Officials, Farm Board Members, and Navajo Land Board members. The two workshops were held in both Flagstaff, Arizona and Nenahnezad, New Mexico. Twenty-five attendees were invited to each workshop. The two groups discussed both climate change observations within their own communities and natural resource priority concerns on the Navajo Nation.



A summary report<sup>1</sup> was drafted with information from the Climate Change Workshop, including the recent workshops in August and October. The report summarized the detailed planning process for each workshop. The report was drafted for the purpose to: serve as a learning tool for community leaders to host workshops in their own community; showing the comparison in natural resource priorities for both the western and eastern half of the Navajo Nation; and show the difference in concerns, policies, and laws based on the diverse topography.

Building off the workshops in March, a follow-up workshop was planned for August 27-29 of 2018 in Flagstaff, Arizona. Participants were introduced to the summary report which included the two top natural resource priorities established at the previous workshops. Workshop participants then combined the two priority lists. The newly unified list initiated the establishment of each natural resource concerns' goals and adaptation strategies.

Unfortunately, these goals and strategies were not completed due to the lack of time. Therefore, another workshop was planned for October 23-26 of 2018 in Albuquerque, New Mexico to finish framing the goals and adaptation strategies. Aside from these, participants also rated the risk and priority associated for each goal and strategy of every natural resource concern. Figure 2 displays a few key areas, which participants established amongst themselves, that will be focused on in this adaptation plan.

#### NNDFW Workshop Priority List:

1. Water
2. Feral Horses
3. Communication
4. Enforcement/Compliance
5. Pollution, Air Quality, Illegal Dumping
6. Grazing Management

Figure 2. Community Leaders Priority List.

Workshop attendees generated adaptation plans for each natural resource concern from the priority list. Many of these proposed plans had been shared with other community leaders, which did not attend the workshops, at their local agency meetings which the climate change team presented at. Participants were spilt up into groups of four to minimize distractions during the group discussions. This "round robin" allowed members to voice their opinion without being overshadowed or critiqued by the rest of the attendees. The groups rotated between all the stations, which presented a concern from the priority list, to give their inputs on the rating process.

<sup>1</sup> Navajo Nation Community Leaders Climate Change Report.  
(<https://nndfw.org/docs/Navajo%20Nation%20Community%20Leaders%20Climate%20Change%20report.pdf>)



## Introduction

### General Characteristics and History of the Navajo Nation

The Navajo Nation is settled in the Four Corners area of the Colorado Plateau which expands into Arizona, New Mexico, and Utah. The Navajo Nation is surrounded by four mountains, the sacred mountains, which are Mt. Blanca to the east, Mt. Taylor to the south, San Francisco Peak to the west, and Mt. Hesperus to the north. The Navajo Nation's reservation is approximately 26,634 square miles making it the largest area occupied by any Native American tribe in the United States (Navajo, 2018).



Figure 3. The Navajo Nation Boundary Map.

The Navajo people have their own story of origin which tells of our emergence through the four different colored worlds before reaching this current level, the Glittering World. The First World, where the Navajo People started their journey to the present world, was black. The Second World was blue. The Third World was yellow. The Fourth World, the present world, is white or glittering which is located between the four sacred mountains.

Long before the origin story's time period, Ice-Age Paleo-Indian hunters inhabited thousands of years earlier between 12,000-6,000 B.C. Followed by archaic hunters and gathers between 6,000 B.C-1 A.D. Recordings of the Anasazi people date back before 1300 A.D. Some of the first evidence discovered of the Navajo's existence is dated back before Columbus's exploration in 1491. The first recorded contact made with the Navajo people was in 1581 by the Spaniards (Navajo, 2018). Before the Long Walk of 1864, the Navajo people roamed the region as hunters and gatherers. In the beginning of 1864, thousands of Navajo people were forced to walk to Fort Sumner in New Mexico. Two years later, the Treaty of 1868 was created which allowed the Navajo people to return back to their newly established reservation. Eventually, the reservation expanded from the original 5,400 square miles to 27,425 square miles (Era, 2018).

The census total for the Navajo Nation topped over 300,000 enrolled tribal members as of 2010, which is the most recent census count done yet (Donovan, 2011). According to the 2010 U.S. Census, there was a total of 332,129 enrolled Navajo tribal members across the United States (Center, 2013). Of those, only 156,823 Navajos solely reside on the reservation, 33,370 Navajos reside in border towns (e.g. Gallup, Holbrook, Winslow), 86,455 Navajos reside in metro areas (e.g. Phoenix, Albuquerque), while the remaining 55,481 reside in other places.



The Navajo Nation's large acreage extends the reservation boundary into the three states of Arizona, Utah, and New Mexico. Listed in Figure 1 are different aspects of land associated with the overall 27,425 square miles.

**TYPE OF NAVAJO NATION LANDS  
AND LEASES**  
as of 3/31/1998

Types of Lands	Arizona	New Mexico	Utah	Total
Navajo Nation Trust	10,158,784.82	2,795,418.26	1,223,933.96	14,178,137.04
Navajo Nation Fee	585,169.98	357,000.00	424.90	942,594.88
Individual Indian Allotment	81,963.81	671,043.50	9,741.80	762,749.11
State Lands Lease	256,905.79	126,760.10	-	383,665.89
BLM Leases	-	150,002.23	-	150,002.23
U.S. Forest Service Permit	174,000.00	-	-	174,000.00
Government E.O. PLO & School Tract	-	91,838.99	5.99	91,844.98
New Lands	345,032.00	-	-	345,032.00
	<b>11,601,856.40</b>	<b>4,192,063.08</b>	<b>1,234,106.65</b>	<b>17,028,026.13</b>

The Navajo Nation has: 17,028,026.13 Acres of land or  
26,606.29 Sections Square miles of land or  
739.06 Townships of Navajo Nation Lands and Lease Lands.

Source: Title Section ONLA, Lands Department, Division of Natural Resources.

Figure 4. The Type of Navajo Nation Lands and Leases.

## Importance of Cultural Traditions, Sites, and Associated Natural Resources:

With a majority of the Navajo Nation still practicing traditional dances, ceremonies, and other culturally sensitive events, it becomes hard to implement new strategies that do not go against what many Navajos were taught and continue to live by. In the culture, there are several animals which are considered to be sacred to the people. For example, horses are meant to be both powerful and sacred. This perception makes it difficult to resolve the reservation's overall overpopulation of feral horses. Aside from animal culture, many tribal members have expressed their concerns for the neglect and loss of traditional practices due to climate stress. Community members articulated on these concerns, and more, during community presentations and climate adaptation workshops.

## Tribal and Local Government

The Navajo Nation has an elected tribal government that includes an executive office, legislative house, and judicial system. However, the United States federal government still holds power over all decisions. The executive branch is led by the Navajo Nation President and Vice President whom are elected officials, based on the popular vote of the Navajo people, and serve a four-year term. The judicial branch is led by the Chief Justice of the Navajo Nation who is appointed by the President and is confirmed by the Navajo Nation Council. Lastly, the legislative branch is composed of eighty-eight members called Council Delegated or the Navajo Nation Council. The delegated are elected by registered voters from all 110 chapters across the Navajo and also serve a four-year term (The Navajo Nation Economic Development, 2004).

Another sector of the Navajo Nation government is the local government that occurs through chapters which are geographically subdivided populations of tribal members. There is a total of 110 chapters divided into five agencies (Northern, Eastern, Ft. Defiance, Central, and Shiprock Agency) within the Navajo Nation. With these chapters, they allow tribal members to vote on local economic development issues and have significant power in the community with planning and development. However, the authority legally remains with the Navajo Nation Council (The Navajo Nation Economic Development, 2004).

## Elected Agriculture Community Leaders

Along with the local government system, each chapter within the Navajo Nation has their own elected agriculture community leader. Elected leaders will belong to one of three organizations of District Grazing Committee, Navajo Land Board, or Farm Board. These three organizations are in charge of implementing both agriculture and livestock laws and regulations within their chapters' community. These elected agriculture community leaders work closely with the Navajo Nation Department of Agriculture (NNDA) which is a department under the Navajo Nation Division of Natural Resources (NNDNR).

---

"We always hear plans being done at Window Rock and we get a paper telling us to implement these laws, so thank you Fish and Wildlife for including us at the ground level."

---

## Geology

The Navajo Nation is located on the Colorado Plateau with a variety of geological settings such as the Chuska Mountains and Defiance Uplift that separate the San Juan Basin and the Black Mesa-Holbrook Basin (Klauck, 2005). The altitude can reach a low of 5,500 feet to a high of 10,500 feet from the desert region to the mountains that are



covered in alpine forests. Due to the wind and water erosion over the years has created mesas, mountains, and canyons that the Navajo Nation is known for such as Canyon de Chelly, Shiprock Peak, Monument Valley, Window Rock and more.

## Climate

Due to the variety of geological settings within the Navajo Nation, the climate can vary in different regions and even in between. Fluctuating climate patterns across the reservation from south to north has caused both severe cold winds and hot summers. The entire southwest has been experiencing a long-term trend toward a hotter and drier weather throughout the year. Many individuals within the Navajo Nation have noticed this temperature change. Elders reminiscence of their childhood years when there was an abundance of snow which lasted for months and long monsoon seasons. Whereas now, the snowfall melts within the day and rainfall run-off has drastically increased. These present-day problems effect the natural aquifers' recharging process.

## Why the Navajo Nation is Planning for Climate Change

Climate Change is real. Effects from climate change are happening right now and the Navajo people are witness to its continuing outcome. Analyzing the effects to the Navajo Nation in all aspects, the culture and traditions are at risk. Many areas are being jeopardized by climate change, one of those is – natural resources. Navajo culture is centered around the available, yet diminishing, sources of natural resources. The people established their cultural lifestyle from the earth itself. The ceremonial herbs, scared stones, wildlife, and more are important elements to the people. Relations

amongst families are also significant to the culture, hence the clan system. Many tribal and local monuments also hold a large importance to our self-identity.

This is the reason why the Navajo Nation is planning for climate change. With the effects from the changing climate, there are risks associated with everything in our natural environment, the population, and places. Planning for the oncoming change helps to reduce those future risks. Climate change cannot be stopped so we must plan and adapt to those future impacts.

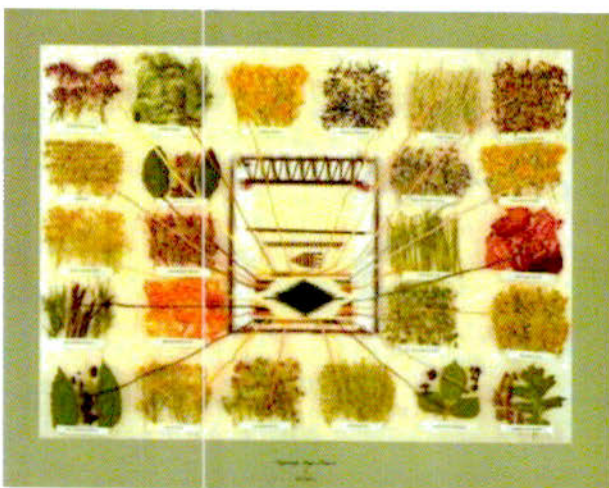


Figure 5. Traditional Wool Dyes.



## Navajo Nation Priority List

In March of 2018, the Navajo Nation Department of Fish and Wildlife held two workshops with a select group, from the group of elected agriculture officials, whom volunteered their attendance. These participants contributed their time to bring up natural resource concerns which they observe within their own communities. The focuses of these workshops were to gain an insight on natural resources management at the community-level. Followed by a comparison to the NNDNR Professionals' Workshop, which was held in January of 2018. For the Professionals' Workshop, under the Division of Natural Resources, all departments sent field personnel to represent single departments. These representatives acquired knowledge on both the department and community's daily operations. Representatives conveyed their affiliated department's concerns, while still considering communities, to the workshop facilitators. In conclusion, the participating representatives created a priority list for the Division of Natural Resources.

After the NNDNR Professionals' Workshop, the climate change team attended the Navajo Nation Department of Agriculture's reservation wide meeting for all elected members. There, the team showed attendees results from the NNDNR Professionals' Workshop and asked for participants in March of 2018 for the Climate Change Program's own workshop. Since participants were located all over the Navajo Nation, the workshop in March were split into two. This was done to accommodate the participants' various locations and minimize traveling. Both workshops ended with a new priority specific to the western and eastern half of the Navajo Nation.

Table 1. Western and Eastern Navajo Priority Lists.

Western Navajo Nation Priority List	Eastern Navajo Nation Priority List
1. Communication	1. Enforcement
2. Enforcement/ Compliance	2. Feral Animals
3. Education/ Outreach	3. Water
4. Water (management, security, conservation)	4. Grazing Management
5. Feral Horses	5. Air Quality
6. Grazing Management	6. Funding
7. Animal Control	7. Education
8. Sustainability Resources (clean, alternative)	8. Communication
9. Soil Conservation	9. Forestry
10. Land Use	10. Illegal Dumping
11. Restoration/Rehabilitation	11. Land Management
12. Pollution	12. Pollution
13. Youth	13. Animal Control
14. Invasive Species	14. Invasive Species
15. Record Keeping/ GPS Data	15. Youth
16. Forest Management	16. Erosion



Continuing the pursuit of an adaption plan, a follow-up workshop was scheduled later in the year for August. The intent of this workshop was getting previous participants to return and amalgamate the two priority lists for one unified list for the entire Navajo Nation. The workshop hosted both sides of the Navajo Nation to give participants the opportunity to state their opinions on the unification process and differences in challenges amongst agencies. Several participants discussed different procedures they must follow based on their agency and land classifications (Navajo Partitioned Lands, Navajo Nation Trust, Individual Indian Allotment, BLM Leases, State Land Lease, New Lands, etc.).

Table 2 displays a comparison of priority lists from the Division of Natural Resources Professionals' Workshop and Department of Fish and Wildlife's Climate Change Workshop, with the elected officials from Department of Agriculture.

Although ranked and worded differently, priority lists from the Professionals' Workshop and Climate Change Workshop are comparable. Both workshops brought up similar priorities along with concerns. Priority lists were created by the attendees with little to no help from the workshop facilitators. Goals were also established to further support the adaptation strategies.

**Table 2. Priority List Comparison.**

<b>NNDNR Professionals Priority List:</b>	<b>Agriculture Elected Community Leaders Priority List:</b>
1. Overgrazing (feral horses, livestock)	1. Water
2. Water Security (quality, quantity)	2. Feral Horses
3. Land use management and planning	3. Communication
4. Interdepartmental collaboration and communication	4. Enforcement/ Compliance
5. Education, information and outreach	5. Pollution, Air Quality, Illegal Dumping
6. Enforcement	6. Grazing Management

The Climate Change Program created a survey with the help of the elected community leaders from the Navajo Department of Agriculture. These surveys were distributed out in communities which the program was presenting in. An online version of the survey was also uploaded to the Navajo Department of Fish and Wildlife's website for individuals. Questions in this survey include but were not limited to: observations in environmental changes, participant knowledge on climate change, participants' usage of land and importance of natural resources.

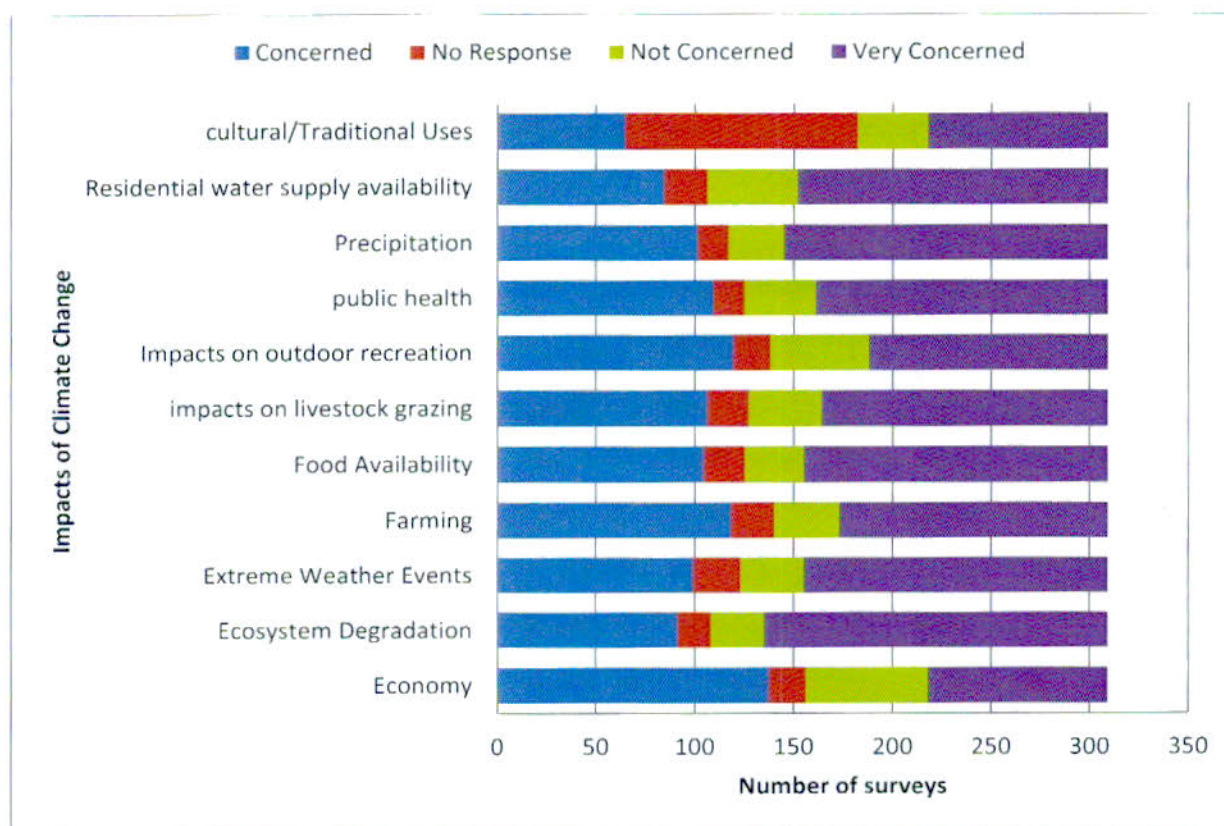


Figure 6. Impact Concern by Climate Change

### Priority Point 1: Water

Water is considered to be one of the major natural resources that is needed to survive. Throughout the years, our clean water resources have been depleting and contaminated with no real solutions or strategies. Attendees reflected on potential new objectives and regulations for water at the Climate Change Workshop. One suggestion was requiring homeowners and contractors to install water efficient systems into homes. Many attendees also discussed the rising concern of diminishing water levels in their community wells due to the relaxed recharging rate. Many wells would reach an adequate level of water until the early mornings. Attendees mentioned having to wait till early morning to retrieve water. Mining industries also contribute to the diminishing levels in the natural aquifers. Because of this, attendees suggested revisiting water rights pertaining to the General Leasing Act.



### Priority Point 2: Feral Horses

There have been countless debates regarding solutions for the overpopulation dilemma with the feral horses on the reservation. The Navajo Department of Fish and Wildlife conducted a study to gather more information on the feral horse issue. The study's report claimed to have surveyed 89 east-west transects across the Navajo Nation and recorded over 38,000 horses within those survey areas (Wallace, Stahlecker, Ruehmann, Nielson, & DiDonato, 2017). Due to the increasing number of feral horses, annually, damage to the natural resources and property are also increasing. Horses are not native to the area and are considered to be an invasive species. There are several characteristics in horses which are different from common wildlife, such as elk and deer. Some distinctive characteristics between horses and wildlife are hoof variations, eating behavior, and damage possibilities. Hooves are solid while deer have two main hooves on each foot, a cloven hoof. Constant impact from hooves, cause the soil to compact and damage vegetation. Deer nibble on vegetation leaving plant roots for regrowth. Horses consume the whole plant and rip out plant roots. Property damage has a higher association with feral horses. Although free-roaming studs on the Navajo Nation is against rules and regulations, studs are still known for breaking fencing and running off with other enclosed horses.

### Priority Point 3: Communication

During the Professionals' Workshop and the Climate Change Workshop, communication between departments and governments was repeatedly voiced. Attendees discussed the submitted paperwork's processing time and wait time to get results back. The attendees expressed the concern of misinformation they're given from different departments and personnel. A contribution to the miscommunication is the language barrier from English to Navajo, and vice versa. Meaning is lost through translations between member and departments because of improper translation.

### Priority Point 4: Enforcement and Compliance

Enforcement and compliance to rules and regulations is lacking across the Navajo Nation because of the vast area of land. Limited resources, including enforcement personnel, leaves community leaders within each chapter the responsibility of enforcing rules and regulations. Members of the community are advised to report to the Division of Natural Resource's enforcement section or the Navajo Nation Police.

### Priority Point 5: Pollution, Air Quality, and Illegal Dumping

Members of the three agriculture organizations witness the daily changes in their community and across the Navajo Nation. Observing changes such as growing

pollution levels in the land, air, and water. Members shared with others at the Climate Change Workshop that rural communities are more prone to illegal dumping because approved dump sites are too far away. Community members will dump trash along the road in washes, which leads to chemical contamination in the ground and underground water reservoirs. Livestock and wildlife are also known to consume particles from these sites and causing internal damage to themselves.

### **Priority Point 6: Grazing Management**

Ranchers have entrusted the land to repair itself. They've relied on the method of open grazing their livestock. However, many have not implemented strategies to help repair the land or replant native grasses to help the land grow back what their animals have consumed. Members of the District Grazing Committee and Navajo Land Board have the job of educating the permit holders in their community. Meetings are held every month for permittees to convene and learn new grazing management strategies. Many permittees are elderly and despite these efforts from the officials these permittees do not fully understand. Officials work to teach new strategies but elders refuse to implement them. Another problem officials face is the loss of knowledge. Knowledge is not being passed down from old to new permit holders and therefore new permittees are not as prepared to run the ranch on their own.



## Identifying Vulnerabilities on the Navajo Nation

With a newly combined priority list from the Climate Change Workshop, we moved into finding strategies that accomplished the goals for each priority. The goals were established on a bigger scale. Therefore, goals were dissected into smaller steps which would assist in achieving goals. Steps also involved other departments under the Navajo Division of Natural Resources, as well as chapter house officials. The different classified land types added a difficulty when taken into account as far as potential impacts each can incur. Therefore, there will be multiple plans for the various sections.

### Priority Point 1: Water

Attendees discussed new adaptation strategies for the water resources. Many thought of new objectives or regulations for the water, such as new regulations to require installations of water efficient systems. The involvement of community members was needed to install water saving systems in community homes which would benefit everyone from the farm to household. Strategies of communication with Navajo and Non-Navajo corporations for expert opinions for efficient resources, financial included, was also encouraged.

### Priority Point 2: Feral Horses

Facilitators informed attendees of current feral horse management plans. However, many attendees expressed their limited abilities, proper equipment being one of them. Some attendees assumed they had to go through a process in order to do a community round-up, beforehand. Whereas, some officials were able to take advantage of their job description for an easier process. The topic opened up another discussion amongst the entire group on how they each deal with their community's feral horse situation. A resolution for horse round-ups was also a topic of discussion. Attendees mentioned the resolution only needed a single approval and would stay in affect until the end of that specific official's term.

### Priority Point 3: Communication

On the topic of communication adaptation plans, attendees conversed over the Navajo Nation government system and the time frame for paperwork to be finalized. Concerns were mentioned regarding information given to attendees. When contacting a department, the information is inconsistent with other departments. Some contributing factors for that are: personnel giving incorrect information; available personnel do not speak Navajo fluently and misinterpret what is being asked of them;

and current personnel are not willing to pass on information to new personnel. Aside from the miscommunication issues, the younger generations are more willing to give information.

Figure 4 it shows how the younger generation was more willing to finish the climate change survey.

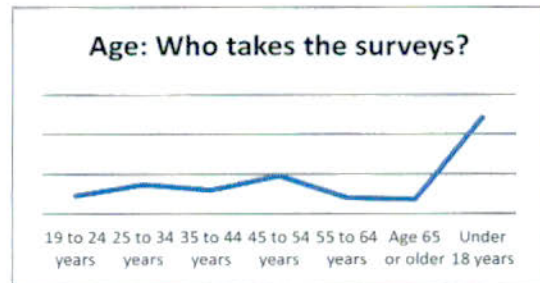


Figure 7. Age: Who takes the surveys?

#### **Priority Point 4: Enforcement and Compliance**

With the lack of enforcement and compliance to grazing regulations, this topic was heavily discussed. Reason being, the community leaders are left to enforce the regulations in their community and have conflicts with doing so. A majority of the attendees have trouble either enforcing or getting assistance from other departments. Many shared their personnel stories of what they've encountered when trying to enforce the laws and regulations within their communities. They spoke about being placed in the line of fire during round-ups. Also, of how they're left to experience the repercussions from the community because law enforcement can't protect them for extended periods of time.

#### **Priority Point 5: Pollution, Air Quality, and Illegal Dumping**

The main objective of this priority was to reduce and control pollution, bad air quality, and illegal dumping for the Navajo people, land, and animals. District Grazing Committee, Navajo Land Board, and Farm Board officials see a majority of the pollution that occurs within the communities. Attendees discussed implementing new recycling centers within the Navajo Nation and providing mobile centers to visit secluded communities. Attendees stressed the importance of educational outreach to educate the various communities of these centers and how to take advantage of them. Lastly, it was mentioned to have these centers assessed and created to the standard of the Environmental Protection Agency to eliminate contamination.

#### **Priority Point 6: Grazing Management**

Attendees shared their current efforts to contain the feral horse population on the Navajo Nation with horse surrenders, horse sales, and round-ups. The lack of community involvement and education on new grazing techniques is the main obstacle for community leaders. Personal experiences of round-ups were shared amongst the group, along with the physical and verbal backlash they receive from members of the community. Many of which they have to deal with after law enforcement leaves. This has the community leaders questioning their involvement in helping the community.



## Goals and Adaptation Strategies

Members from the District Grazing Committee, Farm Board, and Navajo Land Board discussed goals they wanted to accomplish for every priority point, natural resource concern. Multiple goals were then established for every concern. Since the goals are set on a larger scale, attendees created adaptation strategies which would support the accomplishment of goals when followed.

### Priority Point 1: Water

**To adjudicate water rights.** Revisit current Navajo and Non-Navajo water rights. Seek expert advice to adjudicate current water rights. File water use under the Water Code. Obtain a permit. Provide data that justifies water needs.

**To recycle water.** Update both the Drought Contingency Plan of 2003 and the Water Resources Development Strategy. Also send a copy of these plans to the community leaders. Develop drought mitigation measures for each region on the Navajo Nation. Prioritize each region. Implement objectives from both documents.

**To protect, preserve, and restore watershed and head waters.** Use the Water Resource Strategy document to construct and/or repair dams, wells, solar powered windmills, vegetation reconstruction. This will help to recharge the aquifers. Also, look into Little Colorado River Water Settlement and water level. Develop a conservation plan for the entire Navajo Nation. Some examples are: erosion control; grass replanting; livestock removal by cancelling and deferring permits from the permittees.

**To provide reliable water supply.** Amend the Homesite Lease regulations. Require water and energy efficient designs in buildings. Create building codes for the Navajo Nation. Incorporate use of grey water for plants not for consumption which will need a permit from the Navajo Tribal Utility Authority (NTUA). Establish a collection system.

**To have clean water.** Stop the use of the ground water for industrial use, specifically for mining. Revisit the current water rights pertaining to the General Leasing Act.

**To ensure high quality water for all users.** Evaluate and assess the Managed Aquifer Recharge (MARS).

**To provide educational outreach.** Revive 4-H and Future Farmers of America (FFA) in schools. Coordinate with these schools to establish a natural resource curriculum.

**To secure funding for local communities for natural resources management.** Coordinate with NTUA to implement tiered rate on water usage. Meaning rewarding people who use less than a set amount of water with lower rates, compared to those who use larger



amounts of water. Create community driven projects, such as drip irrigation, water harvesting, usage of straw bales, selecting water efficient crops only, and implementing home-based education on natural resources over school driven.

**To obtain more water statistics and data.** Complete an assessment of earthen dam conditions with Navajo Department of Water Resources. Establish rehabilitation plans based on the assessment. Also, create and implement a plan for the earthen dams. Contract outside companies for projects. Place a "freeze" on livestock water due to the lack of filing from farmers and ranchers with the Water Code section. Also, pay for the water being used upfront. Provide water to last year-round, per water source. Using "dirty" water for compaction. Lastly, dam-up all run-offs.

## Priority Point 2: Feral Horses

**Improve the Navajo Nation's ability to effectively enforce livestock management regulations.** Enforcing all rules and regulations for livestock management. Making ownership of studs illegal and using artificial of insemination as an alternative, refer to Title III – Chapter 7. Amend the regulations which are in effect today. Build communication with livestock rangers because citations are not enforced and there is no support from them for Grazing Officials whom write up the non-compliant citations. Create resolutions to support round-ups of unbranded horses on the Navajo Nation. Obtain resource and a development committee.

**To address the need for an informed Navajo Nation citizenry by developing livestock management education programs to inform communities about the need for sustainable management, environmental impacts by unmanaged horses, and introduce curriculum programs to elementary schools.** Establishing a Cattlemen's Association to create a plan of operations and conservation plan. Continuing to educate permittees at meetings and when a permit is being issued to a new holder. This is in the job description of the community leaders. Prohibit fractionizing permits which currently two people are needed per fraction to stop a family dispute. Revisit codes from the CFR, State Codes, and Water Codes. Overall, reorganize.

**Improve the interest in Navajo horse adoption programs by forming effective partnerships and conducting outreach.** Providing copies of an indefinite Horse Management Plan (HMP), which chapters support, to officials including the drafted resolution. Orchestrating voluntary horse round-ups in sections and regions. Provide unified training for all officials to ensure consistency. Strategize with livestock rangers to designate pick-up locations of feral livestock. Allocate funds at the chapter level and create new accounts solely for the officials.



### Priority Point 3: Communication

**To ensure safety and the wellbeing of the community during climate change and establish a long-term plan.** Improve communication by holding departments and council accountable. Complete and evaluation or hold all stipends. Shorten the timeframe of the paperwork process for all documents sent to Window Rock. This can be accomplished by providing direct line of responses, digitizing paperwork, updating material, and creating a new database and office for each agency. Improving communication between officials and Directors. Hiring a receptionist who is fluent in Navajo and English.

**Inform and direct community to follow standard protocol, establish a strong communication network within the community, and create partnerships with emergency management.** Establishing T.V. and news stations which are specific to the Navajo Nation and its concerns and resources. Collaborating with local news channels. Develop a series regarding natural resources with local colleges. Create a short film or documentary in Navajo.

**To develop a strong interdepartmental communication strategy and improve communication with a chain of command.** Appoint the Climate Change Program to develop community engagement strategy. Engage with the community through the Navajo Department of Fish and Wildlife's website, news media, informational booths, presentations, posters, and diagrams.

### Priority Point 4: Enforcement and Compliance

**To ensure long-term funding. Hire a grant writer.** Apply a grazing fee which needs to be in a separate account away from General Funds. Establish a 5-year lease for drought insurance. Require application fees for all permit transfers.

**To have an abundant amount of resources.** Hire reliable personnel. Reschedule livestock rangers to make them available throughout the Navajo Nation 24/7. Build inspection stations throughout the Navajo Nation with equipment storages. Require and enforce officials to submit quarterly and annual reports for future recommendations. Encourage livestock rangers and Deputy livestock Inspectors (DLI) to provide hauling permit records to officials for verification purposes. Establish and improve coordination between livestock rangers and officials from the District Grazing Committee, Farm Board, and Navajo Land Board.

**To provide educational outreach.** Present at permittee, district, agency, and chapter meetings. Educate community members on regulations, procedures, and to clarify on policies, procedures, and regulations. Distribute information via email to everyone from a listing. Create an informational website for the public to educate themselves.



**To have a court system which is familiar with natural resource rules and regulations to strengthened the fundamental law, with respect to law enforcement.** Train court system personnel about laws and regulations, along with proper ways to address related issues. Hiring personnel with related work history and has experience with current natural resource issues. Environmental attorneys would be ideal for this position. Update the court system's laws, regulations, procedures, and record keeping. Establish laws through the Navajo court system to handle transportation across the Navajo Nation by Non-Navajo entities. Clarify what the Navajo Nation is and what belongs to the tribe. Example, unbranded horses. Provide an attorney and/or a technical assistant to assist with interpretation of the Navajo Nation laws.

**Finding harmony between being culturally sensitivity and compliance with rules and regulations.** Amend the Homesite Lease regulations for culturally sensitive areas. An example given was having the ability to relocate previously buried remains if in an area of a newly approved homesite lease. However, culturally this is frowned upon and the land should be left alone.

**To provide protection against threats for enforcement.** Create a law to protect officials from the District Grazing Committee, Farm Board, Navajo Land Board, and all volunteers. Address mediations in designated areas with operating procedures. Establish equality amongst officials. Create an incident command operation plan for horse round-ups. Provide life/health insurance or coverage to participants.

**Mandate all department and officials to comply with the grazing management booklet.** To have department heads support officials.

### **Priority Point 5: Pollution, Air Quality, and Illegal Dumping**

**Create re-usable energy to establish sources on the Navajo Nation.** Conduct studies to establish areas to build solar and wind turbine farms across the reservation.

**Establish landfill centers to reduce pollution on the Navajo Nation.** Build centers to the standards of the U.S. Environmental Protection Agency (EPA). Conduct studies on soil quality at potential locations. Design designated carcass disposal areas. Consent and withdraw the land.

**Establish recycling centers on the Navajo Nation to control illegal dumping.** Build a recycling center with designated personnel. Consent and withdraw the land. Educated communities, schools, divisions, departments, and businesses on the purpose and benefits of recycling. Build to the standards of the U.S. EPA and near landfill facility to maximize recycling potential. Establish relationships with reliable buyers for all recycled material. Contract green driven companies for Navajo Nation needs.



**To develop a policy to reduce and eliminate trash burning.** Keep educating people about this particular policy. Bring the information to schools and community events. Fine violators on violations.

**Establish education programs on the effects of pollution, air quality, and illegal dumping.** Distribute informational booklets to Homesite Lease applicants about policies and sign an acknowledgement of understanding. Although applicants will be informed, they are only responsible for one acre of land.

**To have land and water free of toxic wastes.** Continue the uranium waste clean-up and create toxic waste depositories to remove from the Navajo Nation. Comply with standards from the Navajo Nation Environmental Protection Agency. Also, report all operations to the Navajo Nation Environmental Protection Agency.

**For the Navajo Nation to comply with environmental standards.** Create positions for compliance officers and law enforcement programs under the U.S. Environmental Protection Agency.

**Implement a carbon tax on the Navajo Nation.** Invite professionals to community meetings and educate the public on carbon taxes.

**To control carbon emissions.** Implement an emission testing station.

**Mandate laws of transporting hazardous and toxic materials on the Navajo Nation.** Lobby against the transporting of toxic and hazardous wastes across the Navajo Nation. Build tolls for those transporting these types of wastes. Create laws and regulations for transporting toxic and hazardous wastes.

**To establish an airspace initiative and prevent contamination across large areas during air transport.** Consult with professionals whom are experience in the related issue. Educate the public on the topic of airspace initiatives and federal communications, which has control over all air space.

**To establish natural gas lines to minimize the usage of harmful emissions.** Take full advantage of partially implemented natural gas lines. Majority of towns taking advantage are border towns. Natural gas lines need to run across the entire reservation, since natural gas lines have a right-of-way and lines can be tapped into for easier access.

**Protect the Navajo Nation from fracking, and chemical injection, activities to prevent pollution to our land and water resources.** Conduct more studies, environmental impact study, on environmental dangers. Oppose "chemical injection" under the General Leasing Act. Enforce the No Drill Act of 1997. Educate schools on fracking and its dangers.



### Priority Point 6: Grazing Management

**Educate the youth, elders, and fellow peers about grazing management topics.**

Educational topics can be rules and regulations, soil sciences, pasture rotations, disease prevention, and more. Professionals experienced with all views can be brought in to host workshops and educate.

**Establish separation of power amongst NPL, ARMA, New Lands, Navajo Nation, and the Federal Government.** Convene with head personnel of the organizations in a meeting. From there, establish authorities and boundaries between all organizations.

**Have better control on the overall Navajo Nation's livestock population.** A rangeland inventory needs to be completed. A land availability needs to be reassessed. Data needs to be updated and digitized for easier access in the future. The carrying capacity needs to be readjusted based on new research data. A conservation plan and plan of operations needs to be created. Birth controls methods need to be taken of advantage of such as castration and other birth control options.

**To improve the Navajo Nation's overall vegetation health.** Establishing range unit fencing for the entire Navajo Nation. Establish a grazing schedule since the Eastern and Northern regions have rotation grazing. Implement and enforce a conservation plan. Provide educational outreach to communities across the Navajo Nation. Implement deferred grazing, meaning pausing grazing for a certain amount of time. Reseed the area while the area is being deferred.

**Have the ability to protect and provide adequate forage for both wildlife and endangered species on the range.** Identify sensitive areas across the reservation. Establish a wildlife reserve and seed bank.

**Establish relationships with outside non-profit natural resource organizations and/or cost-sharing programs.** Start off by hiring a grant writer. Get involved with multiple benefiting organizations. Another option would be to create a non-profit and co-ops on the reservation.

**Complete all existing fencing projects on the Navajo Nation. Utilize the available drought insurance funding.** Communicate with the Bureau of Indian Affairs for supplies and funding. Utilize proposals which may have already been submitted or create a new one. Get consent and withdraw from surrounding permittees. Have permittees build and repair their own fencing and cattle guards.

**To develop a chemical disposal policy.** Collaborate with the U.S. Environmental Protection Agency. Seek advice from other experienced Native American tribes.



**To eliminate invasive species.** Provide certified reservation-grown hay for the Navajo people. Encourage the use of environmentally friendly forms and using certified personnel to eradicate invasive species. Also, using forms which will benefit both the vegetation and animals on the range whether this is livestock or wildlife. Lastly, implement a weed policy for the Navajo Nation.

**Revisit the Rangeland Improvement Act of 2014 and amend Title III.** Involve the District Grazing Committee, Farm Board, and Navajo Land Board in the redrafting process. Provide outreach to communities about the Rangeland Improvement Act.

## Assessing Priorities and Risk

With identified vulnerabilities and established goals, the attendees of the Adaptation Workshop could assess the level of importance, or priority, and associated risk for adaptation strategies. The group went through each goal and ranked them accordingly. Strategies are taken into account and goals are ranked between a low to high scale for priority and a low to high scale for associated risk for the actions.

### Priority Point 1: Water

Table 3. Priority and Risk Levels for Water.

Goals	Priority	Risk
To adjudicate water rights.	High	High
To recycle water.	Medium	Medium-High
To protect, preserve and restore watershed and the head waters.	High	High
To provide reliable water supply (maintain a current water level).	High	High
To have clean water.	High	High
To ensure high quality water for all users.	High	High
To provide educational outreach.	High	High
To secure funding for local communities for natural resource management.	Medium	Medium
	High	Medium-Low
To obtain more water statistics/data.	High	Low
	High	High

### Priority Point 2: Feral Horses

Table 4. Priority and Risk Levels for Feral Horses.

Goals	Priority	Risk
Improve the Navajo Nation's ability to effectively enforce livestock management regulations.	High	High
	High	High
To address the need for an informed Navajo Nation citizenry by developing livestock management education programs to inform communities about the need for sustainable management, the environmental impacts from unmanaged horses, and to introduce curriculum programs to elementary schools.	High	Medium
	High	High
	Medium	High
	High	High
Improve interest in Navajo horse adoption programs by forming effective partnerships and conducting educational outreach.	High	High

### Priority Point 3: Communication

Table 5. Priority and Risk Levels for Communication.

Goals	Priority	Risk
To ensure safety and wellbeing of the community during climatic change and establish a long-term plan.	High	High
Inform and direct the community to follow standard protocol, upgrade a strong communication network within the community, and create partnerships with emergency management.	High	High
To develop a strong interdepartmental communication strategy and improve communication with a chain of demand.	High	High



## Priority Point 4: Enforcement and Compliance

Table 6. Priority and Risk Levels for Enforcement and Compliance.

Goal	Priority	Risk
To secure long- term funding.	High	High
	Low	High- Medium
	Low	High
	Low	Medium
To have adequate resources.	High	Medium
	High	High
	High	High
	Low	Medium
	High	High
	High	High
To provide educational outreach.	High	High
	High	High- Medium
	Medium	High- Medium
	Medium	High
	High	High
To have a court system that is familiar with natural resource laws and regulations (strengthened fundamental law with respect to enforcement).	High	High
	High	High
	High	high
	High	High
Finding Harmony between being culturally sensitive and following the laws and regulations.	High	High
To provide protection against threats for enforcement.	High	High
	High	High
	High	High
Mandate all department and officials to comply with the grazing management booklet.	High	High

## Priority Point 5: Pollution, Air Quality, and Illegal Dumping

Table 7. Priority and Risk Levels for Pollution, Air Quality, and Illegal Dumping.

Goal	Priority	Risk
Create re-usable energy to establish new sources on Navajo Nation.	High	High
Establish landfill centers to reduce pollution on Navajo Nation.	High	High
	High	High
	High	High
	High	High
	High	High
Establish recycling centers on Navajo Nation to control illegal dumping.	High	High
	High	High
	High	high
	High	High
	High	High-medium
	High	High
	High	High
To develop a policy to reduce and eliminate trash burning.	High	High
Establish education programs on the effects of pollution, air quality and illegal dumping.	High	High
	High	High
To have land and water free of toxic wastes.	High	High-Medium
	High	High

For Navajo Nation to comply with environmental standards.	High	high
	High	High
	Medium	High
Implement carbon tax on the Navajo Nation.	High	High
To control carbon emissions.	Medium	High-Medium
Mandate laws of transport of hazardous and toxic materials on the Navajo Nation.	High	High
	High	Medium
To establish air space initiative to prevent contamination across large areas while in air transport.	Low	Medium
	High	Medium
	High	Medium
To establish natural gas lines and minimize the usage of more harmful emissions.	High	High-Medium
Protect Navajo Nation from future fracking, and chemical injection, activities to prevent pollution to our land and water resources.	High	high
	High	High
	High	High
	High	high

## Priority Point 6: Grazing Management

Table 8. Priority and Risk Levels for Grazing Management.

Goal	Priority	Risk
Educate the youth, elders, and our fellow peers about grazing management topics such as rules and regulations, soil sciences, pasture rotation, disease prevention, etc.	High	High
Establish separation of power among NPL, ARMA, New Lands, Navajo Nation, and the federal government.	High	High
Have better control on the overall Navajo Nation's livestock population.	High	Medium
To improve the Navajo Nations overall vegetation health.	Low	High
	High	High-Medium
	High	High-medium
	High	High
	High	Medium
Have the ability to protect and provide adequate forage for both wildlife and endangered species on the range.	High	High-Medium
	High	High
Establish relationships with outside non-profit natural resource organizations and/or cost-sharing programs.	High	High
	High	High-Medium
Complete all existing fencing projects on the Navajo Nation.	High	High
	High	High
	High	Medium
	High	High
	High	High
To develop a chemical disposal policy.	High	High-Medium
	High	High
To eliminate invasive species.	High	High-Medium
	High	High
	High	High
Revisit the rangeland improvement act of 2014 and amend Title III.	High	High
	High	High



## Implementation of Plan

The first step to the Implementation this plan is completing the adaptation strategies listed under each concern. These strategies were created to help all the involved entities accomplish natural resources goals. Once completed, the goals will further support resolutions for each natural resource concern which were established by the workshop attendees, the community leaders. Based on the priority ranking set by the community leaders will determine which goal and strategies should be completed first. The question of support from potential partnerships is also asked in the following tables. Any goal needing supporting partnership state so in the tables as well.

Participation from all involved entities which have been stated in this adaptation plan are key to an overall success in its implementation for the Navajo Nation. This plan may be updated depending on the new research data which correlates to the natural resource concerns discussed in this document.

### Priority Point 1: Water

Table 9. Goals and Strategies for Water.

Goals	Strategies	Priority	Risk	Partnerships Required
To adjudicate water rights	Water shed (affect winter doctrine) by revisiting water rights, we would need expertise, and file water use with Water Code, which would result in permit, and provide data that justifies water needs.	High	High	Yes (Water Code)
To recycle water	Update the Drought Contingency Plan of 2003 and Water Resources Development Strategy (send a copy of the plan to community leaders), Develop drought mitigation measures for each region on the Navajo Nation, and prioritized by region. Implement objectives from both documents.	Medium	Medium-High	Yes (Dept. of Water Resources)
To protect, preserve and restore watershed and the head waters	Water Resource Strategy document (strategies specific to the community) to construct and/or repair dams, wells, solar powered windmills, vegetation reconstruction (to recharge aquifers). Look into LCR (Little Colorado River) Water Settlement and water level, Peabody water treatment, develop 5- and 10-year phases/plan, develop a conservation plan for the entire Navajo Nation (erosion control, grass replanting, livestock removal (e.g. cancel/defer permits))	High	High	Yes
To provide reliable water supply and maintain a current water level	Amend the Homesite Lease regulations, require water/energy efficient designs, create building codes for the Navajo Nation, incorporate use of grey water for trees, shrubs (need permit from	High	High	Yes (NTUA, NHA, etc.)

	Navajo Tribal Utility Authority (NTUA)), and establish collection systems			
To have clean water	Industrial use of natural aquifers, stop use of ground water for industrial use of water for mining, revisit water rights pertaining to the General Leasing Act,	High	High	Yes
To ensure high quality water for all users	Evaluate and Assess Managed Aquifer Recharge (MARS)	High	High	Yes
To provide educational outreach	Revive 4-H, FFA in schools to coordinate with schools to establish natural resource curriculums	High	High	Yes (schools)
To secure funding for local communities for natural resource management	NTUA to implement tiered rate for water use (where people are rewarded with lower rates if they stay under using "blank" amount of water)	Medium	Medium	Yes (NTUA/ Community)
	Community driven projects (drip irrigation water harvesting, use of straw bales, select water efficient crops, home-based education instead of school driven)	High	Medium-Low	Yes (community, chapters)
To obtain more water statistics/data	Navajo Nation Department of Water Resources complete an assessment of earthen dam conditions and establish rehabilitation plans, create and implement the plan, contracted project with an outside company	High	Low	Yes (NNWR, outside company)
	Farmers/Ranchers are not filing with Water Code section, possible put a freeze on livestock water, water paid up front, water to last all year per source, dirty water should be used for compaction (revisit the water use and water code through water resources is in process but still being worked on), dam up run-offs	High	High	Yes

## Priority Point 2: Feral Horses

Table 10. Goals and Strategies for Feral Horses.

Goals	Strategies	Priority	Risk	Partnerships Required
Improve the Navajo Nation's ability to effectively enforce livestock management regulations	Enforcing the laws, making it illegal to own studs, and use artificial insemination (Title III, Ch. 7) Amend Regulations. Citations are going nowhere, build communication with rangers, grazing officials try to implement the laws by writing up non-compliant individuals but no one comes	High	High	No
	Obtain Resource and Development Committee Resolution supporting the round-up of unbranded horses Navajo Nation wide	High	High	Yes (RDC)
To address the need for an informed Navajo Nation citizenry by developing	Create a Cattlemen's Association to create a conservation plan and plan of operations	High	Medium	Yes



livestock management education programs to inform communities about the need for sustainable management, the environmental impacts of unmanaged horses, and to introduce curriculum programs to elementary school.	Officials educate the permittees during the permittee/ grazing meetings, educating when a permittee is given a grazing permit "We don't need to be told, it's already written in our job description."	High	High	No
	Revisit codes (CFR, State Code, Water) reorganization and educate the community	Medium	High	Yes (NN Water Resources)
	Prohibit fractionizing permits (two people per fraction to stop family disputes) educating permittees on open range	High	High	No
Improve interest in Navajo horse adoption programs by forming effective partnerships and conducting outreach beyond	Horse Management Plan (HMP) providing copies to Grazing Officials, as well as drafted resolution, voluntary round ups, chapter support of HMP through resolution both district and agency making resolution indefinite. Strategize with rangers to have feral livestock picked up at designated locations as determined by the grazing officials, round up in sections or regions (unified training for Grazing, Farm Board, and Land Board members to ensure consistency). Have funds allocated at the chapter level and creating a new account for elected agriculture officials.	High	High	Yes (community, NNDA, NNDFW)

### Priority Point 3: Communication

Table 11. Goals and Strategies for Communication.

Goals	Strategies	Priority	Risk	Partnerships Required
To ensure safety and wellbeing of the community during climatic change, establish a long-term plan,	Improve communication by holding departments, council accountable, holding stipend or being evaluated, shorten timeframe for papers sent to Window Rock (direct line of response, digitizing papers sent in, update material, create new database/office for each agency), to expedite, Program Directors requiring their information be given to the local level to show "where we are going", hiring receptionist that can talk Navajo	High	High	Yes, Navajo Nation
Inform and direct community to follow standard protocol, upgrade a strong communication network within the community, partnership with emergency management	T.V Station/ Radio Station, specific to Navajo Nation resources and concerns, collaborating with local news channels, develop a series dealing with resources from local colleges, short film/ documentary in Dine Bizaad.	High	High	Yes (Navajo Nation and Radio Stations)
To develop a strong inter-departmental communication strategy, improve communication with a chain of demand	Climate Change Program develop community engagement strategy, website, news media, community assessment, booths, presentations (provided by professionals), poster, diagrams	High	High	Yes (Community, NNDNR Professionals)



## Priority Point 4: Enforcement and Compliance

Table 12. Goals and Strategies for Enforcement and Compliance.

Goal	Strategies	Priority	Risk	Partnerships Required
To secure long- term funding	Hire grant writer	High	High	No
	Apply grazing fee (needs to go into separate account away from General Funds)	Low	High-Medium	No
	5- year lease with drought insurance	Low	High	Yes (NND)
	Application fees for permit transfers	Low	Medium	No
To have adequate resources	Hire personnel	High	Medium	
	Have Rangers available 24/7 throughout the Navajo Nation	High	High	Yes (NN Rangers, Wildlife Conservation Officers)
	Build inspection stations throughout the Navajo Nation with equipment storages (livestock, emissions, etc.)	High	High	Yes
	To have Grazing Officials given Quarterly and Annually reports (Enforcement of reports/ recommendations)	Low	Medium	Yes
	Encourage Rangers/ Deputy Livestock Inspectors (DLI) to provide hauling permit records to Grazing Officials for verification purposes	High	High	Yes (Rangers, DLI, Grazing, Land Board)
	Need to have Ranger and Grazing, Land Board, and Farm Board Officials to coordinate	High	High	Yes
To provide educational outreach	Regulations and procedures	High	High	No
	Present at Permittee/ District/ Agency/ Chapter meetings	High	High-Medium	No
	Send out information via email	Medium	High-Medium	No
	Create an informational website for the public	Medium	High	No
	To clarify policies, procedures, and regulations	High	High	No
To have a court system that is familiar with natural resource laws and regulations (strengthened fundamental law with respect to enforcement)	Train court system personnel about laws and regulations and how to address related issues	High	High	Yes (NN Court System, NNDNR Law enforcement)
	Hiring personnel that has related work history and deals specifically with Natural Resource issues (e.g. environmental attorney)	High	High	
	Update court system's laws, regulations, procedures, and record keeping, establish the Navajo Nation law through tribal	High	high	

	court system to deal with Non-Navajo transporting on the reservation, need to clarify who "The Navajo Nation" is (ex. Unbranded horses belong to the Navajo Nation)			
	To have an attorney/ technical assistant to help interpret the Navajo Nation law (Office of Hearing and Appeal)	High	High	
Finding Harmony between being culturally sensitive and following the laws and regulations	Amend home-site lease regulation in culturally sensitive areas (ex. If someone gets a home site they can move people that were previously buried there to another site, however culturally that area belongs to them and they should leave them)	High	High	No
To provide protection against threats for enforcement	Create a law to protect Grazing Officials/ Land Board/ Farm Board/ Volunteers	High	High	No
	To address mediations in designated areas (operating procedures)	High	High	No
	Establish equality among community leaders, incident command operation plan for horse round ups, insurance coverage (life/medical)	High	High	No
Mandate all department and officials comply with the grazing management booklet	To have department heads support officials	High	High	No



## Priority Point 5: Pollution, Air Quality, and Illegal Dumping

Table 13. Goals and Strategies for Pollution, Air Quality, and Illegal Dumping.

Goal	Strategies	Priority	Risk	Partnership Required
Create re-usable energy to establish sources on Navajo Nation	Conduct studies to establish areas to build solar and wind turbine farms across the reservation	High	High	Yes
Establish landfill centers to reduce pollution on Navajo Nation (check DCD Solid Waste Program)	Build to the standards of EPA	High	High	Yes (EPA)
	Conduct studies on potential location's soil quality	High	High	No
	Design designated carcass disposal areas	High	High	Yes
	Consent and withdraw land	High	High	No
Establish recycling centers on Navajo Nation to control illegal dumping	Build a recycling center with designated personnel	High	High	Yes
	Consent and withdraw land	High	High	No
	Educate communities, schools, divisions, departments, businesses on the purpose and benefits of recycling	High	high	No
	Build to the standards of EPA	High	High	Yes (EPA)
	Build enter near landfill facility to maximize recycling potential	High	High-medium	No
	Establish reliable buyers for all recycled material	High	High	Yes
	Contract green driven companies for Navajo Nation needs	High	High	Yes
To develop a policy to reduce/ eliminate trash burning	Keep educating people about this policy, bring information to schools/ community events, not heavily enforce but fines are associated for violations	High	High	Yes (NN Forestry)
Establish education programs on the effects of pollution, air quality and illegal dumping	Hand home site lease applicants an informational booklet on policies and sign an acknowledgement (con- only required to care for one-acre)	High	High	No
	Have EPA present at schools and chapter meetings	High	High	No
To have a land and water free of toxic wastes	Report to NNEPA	High	High-Medium	Yes (NNEPA)
	Continue the uranium waste clean up	High	High	Yes
	Create toxic waste depositories to take off the Navajo Nation	High	high	Yes
For Navajo Nation to comply with environmental standards	Standards in place with NNEPA	High	High	Yes (NNEPA)
	Compliance officers/ law enforcement programs under EPA	Medium	High	No
Implement carbon tax on the Navajo Nation	Invite professionals to community meetings to educate the public	High	High	No
To control carbon emissions	Implement an emission testing station	Medium	High-Medium	Yes (EPA)

Mandate laws of transport of hazardous/toxic materials on the Navajo Nation	Lobby against the transporting toxic/ hazardous wastes across reservation	High	High	No
	Build tolls, laws and regulations	High	Medium	Yes (NDOT)
To establish air space initiative (prevent contamination across large areas while in air transport)	Consult with professionals experienced in the issue	Low	Medium	No
	Educate the public	High	Medium	No
	Federal communication commission has control over all air space	High	Medium	No
To establish natural gas lines to minimize the usage of more harmful emissions	Take full advantage of partially implemented lines (majorities are border towns and needs to run across entire reservation, natural gas lines have a right of way, can tap into the lines.)	High	High-Medium	Yes
Protect Navajo Nation from future fracking (chemical injection) activities to prevent pollution to our land and water resources	Conduct more studies on dangers to the environment (environmental impact study)	High	high	Yes
	Oppose "chemical injection" under the General Leasing Act	High	High	No
	Enforce the No Drill Act of 1997	High	High	No
	Educate schools on fracking and what fracking is	High	high	No



## Priority Point 6: Grazing Management

Table 14. Goals and Strategies for Grazing Management.

Goal	Strategies	Priority	Risk	Partnerships Required
Educate the youth, elders, and our fellow peers about grazing management topics (such as rules and regulations, soil sciences, pasture rotation, disease prevention, etc.)	Bring in professions, all views, workshops	High	High	No
Establish separation of power among NPL, ARMA, New Lands, Navajo Nation, and the Federal Government	Bring head personnel of organizations and establish authorities and boundaries	High	High	Yes
Have better control on the overall Navajo Nation's livestock population	Rangeland inventory needs to be done, land availability needs to be reassessed, update data and digitize for easier access in the future, adjust the carrying capacity based on new research data, conservation plan/ plan of operations, and take advantage of castration and birth control options	High	Medium	Yes
To improve the Navajo Nations overall vegetation health	Establish range unit fencing	Low	High	Yes
	Establish grazing schedule (Eastern/ Northern Rotation grazing)	High	High-Medium	No
	Implement and enforcement conservation plan	High	High-medium	No
	Provide education outreach	High	High	No
	Deferred grazing (pause grazing for certain amount of time), reseeding during deferment	High	Medium	Yes (community, NNDA)
Have the ability to protect and provide adequate forage for both wildlife and endangered species on the range	Identify sensitive areas	High	High-Medium	Yes (NNDFW)
	Establish a wildlife and seed source reserve	High	High	Yes (NNDFW, NN Forestry)
Establish relationships with outside non-profit natural resource organizations and/or cost-sharing programs	Hire a grant writer	High	High	No
	Get involved with organizations	High	High	Yes
	Create own non-profit/ co-ops on the reservation	High	High-Medium	No
Complete all existing fencing projects on the Navajo Nation	Utilize the drought insurance funding	High	High	No
	Communicate with BIA	High	High	Yes
	Utilize proposals	High	Medium	No
	Get consent and withdraw from surrounding permittees	High	High	Yes
	Have permittees build and repair their own fencing/ cattle guard (ROW, RMU, BIA)	High	High	No

To develop a chemical disposal policy	Collaborate with EPA	High	High-Medium	Yes
	Seek advice from other Native American tribes	High	High	Yes
To eliminate invasive species	Provide certified reservation-grown hay for the Navajo people	High	High-medium	Yes (NAPI)
	Encourage the use of environmentally- friendly forms by certified personnel to eradicate invasive species which benefit both vegetation and animals on the range	High	High	No
	Implement weed policy	High	High	No
Revisit the rangeland improvement act of 2014 (amend title 3)	Involve District Grazing Committee (DGC), Land Board, and Farm Board in the re-draft	High	High	Yes
	Provide outreach about the RIA to DGC	High	High	No



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## Notes



# NAVAJO NATION

295

Naa'bik'iyati Committee Meeting

9/5/2019

05:49:31 PM

Amd# to Amd#	Legislation 0239-19: Accepting	PASSED
MOT Smith	and Approving the Climate	
SEC Nez, R	Adaptation Plan for the Navajo	
	Nation as Developed by the....	

**Yea : 12**

**Nay : 0**

**Excused : 2**

**Not Voting : 8**

## Yea : 12

Begay, P	Freeland, M	Nez, R	Tso, O
Brown	Halona, P	Smith	Walker, T
Charles-Newton	Henio, J	Tso, C	Yellowhair

## Nay : 0

## Excused : 2

Begay, E	Tso, D
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## Not Voting : 8

Begay, K	Daniels	Stewart, W	Wauneka, E
Crotty	James, V	Tso, E	Yazzie

**Presiding Chair: Damon**