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# Strategic Management Planning in Snow Leopard Landscapes

## Advice Document Addendum to the General Guidelines for Climate Smart Snow Leopard Landscape Management Planning

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<b>1.</b>	<b>Background</b> .....	<b>2</b>
<b>2.</b>	<b>Principles of Strategic Management Planning</b> .....	<b>2</b>
<b>3.</b>	<b>Suggested Plannig Process</b> .....	<b>2</b>
<b>3.1.</b>	Establish the links between the ecosystem services found in snow leopard landscapes and humans.....	<b>3</b>
<b>3.2.</b>	Document the current state and desired goals for snow leopards and their prey.....	<b>3</b>
<b>3.3.</b>	Identify non-climate direct threats to snow leopards and their prey.....	<b>4</b>
<b>3.4.</b>	Rate the scope, severity and irreversibility of the non-climate direct threats to snow leopards and their prey.....	<b>5</b>
<b>3.5.</b>	Develop a General Model of the Socio-Economic-Ecological System.....	<b>7</b>
<b>3.6.</b>	Summarize climate projections in a small number of future scenarios.....	<b>8</b>
<b>3.7.</b>	Identify likely climate-related impacts to snow leopards and their prey.....	<b>10</b>
<b>3.8.</b>	Add the most important climate impacts back into the General Socio-Economic-Ecological model.....	<b>11</b>
<b>3.9.</b>	Brainstorm interventions that could improve the situation.....	<b>11</b>
<b>3.10.</b>	Use the climate scenarios to filter the potential interventions.....	<b>11</b>
<b>3.11.</b>	Show the logic of the selected strategies .....	<b>12</b>
<b>4.</b>	<b>Key Resources</b> .....	<b>12</b>
<b>5.</b>	<b>Trained Open Standards Coaches</b> .....	<b>13</b>

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## 1. Background

Strategic planning is the process of defining the overall objectives of a snow leopard landscape management plan, determining the current and desired state of snow leopards and their prey, understanding direct threats to snow leopards and their prey as well as the root causes of those threats and developing measurable interventions. In combination with mapping and field work/research, strategic planning is the core process used to develop a snow leopard landscape management plan.

In the context of GSLEP landscapes, strategic planning concerns the following topics mentioned in the existing guidance framework developed by the Snow Leopard Trust, “*General Guidelines for Snow Leopard Landscape Management Planning*”:

- Visions, Goals, Objectives
- Analysis of Threats
- Addressing Threats
- Activities

Other considerations mentioned in the General Guidelines can also be involved in the strategic planning process.

## 2. Principles of Strategic Management Planning

Below are some key principles of the approach suggested in this document:

- Consult relevant stakeholders who understand the ecology, culture and socioeconomics of the landscape
- Include project staff and stakeholders in the planning effort
- Integrate climate change in the development of the project from the beginning

## 3. Suggested Planning Process

There are a number of ways to develop a strategic plan. A commonly used framework, and the one suggested in this document, is the [Open Standards for the Practice of Conservation](http://cmp-openstandards.org/) [http://cmp-openstandards.org/]. The key steps for developing a climate-smart snow leopard landscape management plan are as follows:

1. Establish the links between the ecosystem services found in snow leopard landscapes and humans
2. Document the current state and desired goals for snow leopards and their prey in the landscape
3. Identify non-climate direct threats to snow leopards and their prey
4. Rate the scope, severity and irreversibility of the non-climate direct threats to snow leopards and their prey
5. Develop a General Model of the Socio-Economic-Ecological System
6. Summarize climate projections in a small number of future scenarios (this work takes expertise and time - it needs to begin before the actual planning can begin)

7. Identify likely climate-related impacts to snow leopards and their prey, as well as understanding how humans will be affected and how they consequently may affect snow leopards and their prey
8. Add the most important climate impacts back into the General Socio-Economic-Ecological model
9. Brainstorm interventions that could improve the situation
10. Use the climate scenarios to filter the potential interventions
11. Show the logic of the selected strategies, including the activities that will lead to beneficial outcomes

### 3.1 Establish the links between the ecosystem services found in snow leopard landscapes and humans

This step usually involves developing a diagram that shows how snow leopards and their prey are linked to human well-being via ecosystem services. This diagram (Figure 1) shows an example:

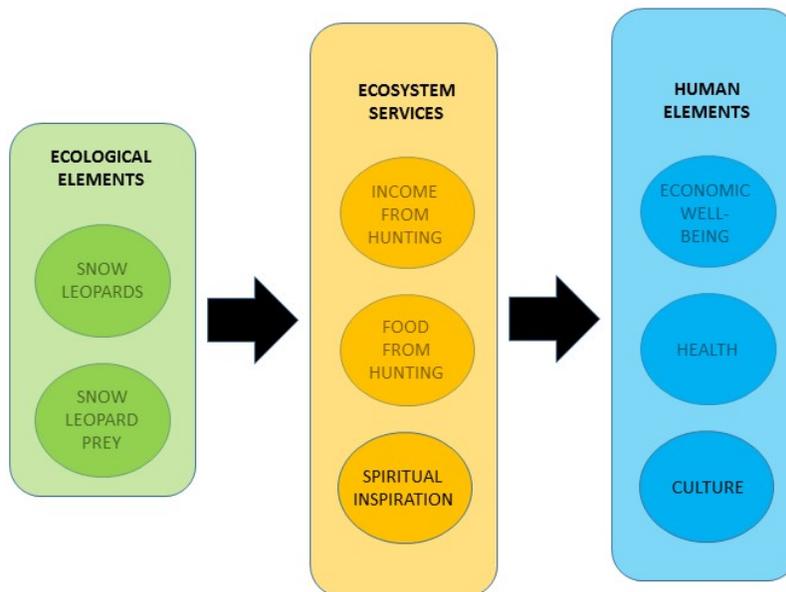


Figure 1. A representation of the relationships between snow leopards, their prey, specific ecosystem services and specific elements of human well-being.

### 3.2 Document the current state and desired goals for snow leopards and their prey in the landscape

This step is about documenting and understanding the current status of snow leopards and their prey species in the landscape, and what the goals are for the future. The status of snow leopards and their prey get broken down into key components with associated indicators and ratings, such as Very Good, Good, Fair or Poor. The rating explanations are as follows, which helps put the status numbers in context:

- **Very Good**
  - Desirable status

- Requires little intervention to maintain
- **Good**
  - Within acceptable range of variation
  - Some intervention required to maintain
- **Fair**
  - Outside acceptable range of variation
  - Requires considerable human intervention to maintain
- **Poor**
  - Restoration increasingly difficult
  - May result in extirpation of snow leopards or their prey

Typically, a table, such as the one below, is a good way to list your ratings (Table 1); it should be customized and adapted to reflect the species and situation in each respective snow leopard landscape.

Snow Leopard Viability Rating Table						
Component	Indicator	Current State	Current Rating	Desired State	Current Rating	Notes
Total Population of Snow Leopards	Number of individuals	320	Good	500	Very Good	Current data is from 2015 field surveys by (Smith et al.)
Occupancy of historic range	% of historic range occupied by snow leopards	60%	Fair	85%	Good	GIS data is maintained by Wildlife Agency

Snow Leopard Prey Viability Rating Table						
Component	Indicator	Current State	Current Rating	Desired State	Current Rating	Notes
Total Population of Siberian Ibex	Number of individuals	1,500	Fair	3,500	Very Good	Current data is from 2015 field surveys by (Smith et al.)

Table 1. Example of a Viability Rating Table.

### 3.3 Identify non-climate direct threats to snow leopards and their prey

This step is about identifying the conventional, non-climate threats to snow leopards and their prey. A threat is defined as an action taken by humans that is directly and negatively affecting snow leopards and their prey. Examples of threats include:

- Poaching
- Retaliatory Killing
- Overgrazing by Livestock
- Human Disturbance
- Etc.

### 3.4 Rate the scope, severity and irreversibility of the non-climate direct threats to snow leopards and their prey

The next step involves an objective rating of the conventional, non-climate direct threats. This rating is usually done in a table format (Table 2).

Snow Leopard & Snow Leopard Prey Threat Rating Table								
Threats	Snow Leopard				Snow Leopard Prey			
	Scope	Severity	Irreversibility	Overall	Scope	Severity	Irreversibility	Overall
Poaching	High	High	Medium	Medium	High	High	Medium	Medium
Retaliatory Killing	Low	High	Low	Low	-	-	-	-
Overgrazing by Livestock	-	-	-	-	High	Medium	Low	Low
Human Disturbance	Low	Low	Low	Low	Medium	Medium	Low	Low
Etc.								

Table 2. Example of a Threat Ranking Table.

The rating criteria follow below:

**Scope** - Most commonly defined spatially as the proportion of the snow leopard (or prey) population that can reasonably be expected to be affected by the threat within ten years given the continuation of current circumstances and trends.

- **Very High:** The threat is likely to be pervasive in its scope, affecting the target across all or most (71-100%) of its occurrence/population.
- **High:** The threat is likely to be widespread in its scope, affecting the target across much (31-70%) of its occurrence/population.
- **Medium:** The threat is likely to be restricted in its scope, affecting the target across some (11-30%) of its occurrence/population.
- **Low:** The threat is likely to be very narrow in its scope, affecting the target across a small proportion (1-10%) of its occurrence/population.

**Severity** - Within the scope, the level of damage to the snow leopard (or prey) population from the threat that can reasonably be expected given the continuation of current circumstances and trends.

- **Very High:** Within the scope, the threat is likely to destroy or eliminate the target, or reduce its population by 71-100% within ten years or three generations.
- **High:** Within the scope, the threat is likely to seriously degrade/reduce the target or reduce its population by 31-70% within ten years or three generations.
- **Medium:** Within the scope, the threat is likely to moderately degrade/reduce the target or reduce its population by 11-30% within ten years or three generations.

- **Low:** Within the scope, the threat is likely to only slightly degrade/reduce the target or reduce its population by 1-10% within ten years or three generations.

**Irreversibility (Permanence)** - The degree to which the effects of a threat can be reversed and the snow leopard (or prey) restored.

- **Very High:** The effects of the threat cannot be reversed and it is very unlikely the target can be restored, and/or it would take more than 100 years to achieve this (e.g. wetlands converted to a shopping centre).
- **High:** The effects of the threat can technically be reversed and the target restored, but it is not practically affordable and/or it would take 21-100 years to achieve this (e.g. wetland converted to agriculture).
- **Medium:** The effects of the threat can be reversed and the target restored with a reasonable commitment of resources and/or within 6-20 years (e.g. ditching and draining of wetland).
- **Low:** The effects of the threat are easily reversible and the target can be easily restored at a relatively low cost and/or within 0-5 years (e.g. off-road vehicles trespassing in wetland).

### Threat Scoring Matrices

The following two matrices show how Severity and Scope are combined to create a Threat Magnitude rank (Table 3), which is then combined with the Irreversibility Rank to deliver an Overall Threat Rank (Table 4).

		Scope			
		4-Very High	3-High	2-Medium	1-Low
Severity	4-Very High	4-Very High	3-High	2-Medium	1-Low
	3-High	3-High	3-High	2-Medium	1-Low
	2-Medium	2-Medium	2-Medium	2-Medium	1-Low
	1-Low	1-Low	1-Low	1-Low	1-Low

Table 3. Example of a Threat Magnitude Rank.

The **Overall Threat Rank** is calculated by integrating **Threat Magnitude** and a third rating variable (in this case **Irreversibility**):

		Irreversibility			
		4-Very High	3-High	2-Medium	1-Low
	4-Very High	4-Very High	4-Very High	4-Very High	3-High

<b>Magnitude</b>	3-High	4-Very High	3-High	3-High	2-Medium
	2-Medium	3-High	2-Medium	2-Medium	1-Low
	1-Low	2-Medium	1-Low	1-Low	1-Low

Table 4. Example of an Overall Threat Rank.

### 3.5 Develop a General Model of the Socio-Economic-Ecological System

This step involves creating a box and arrow diagram that summarizes everything the management team knows about how snow leopards and their prey are threatened, and the drivers behind those threats. Initially, the diagram might look something like Figure 2 (below). Once the information is organized and recreated on a computer, it should look more like Figure 3 (below).



Figure 2. Socio-Economic-Ecological System Diagram (hand-drawn)

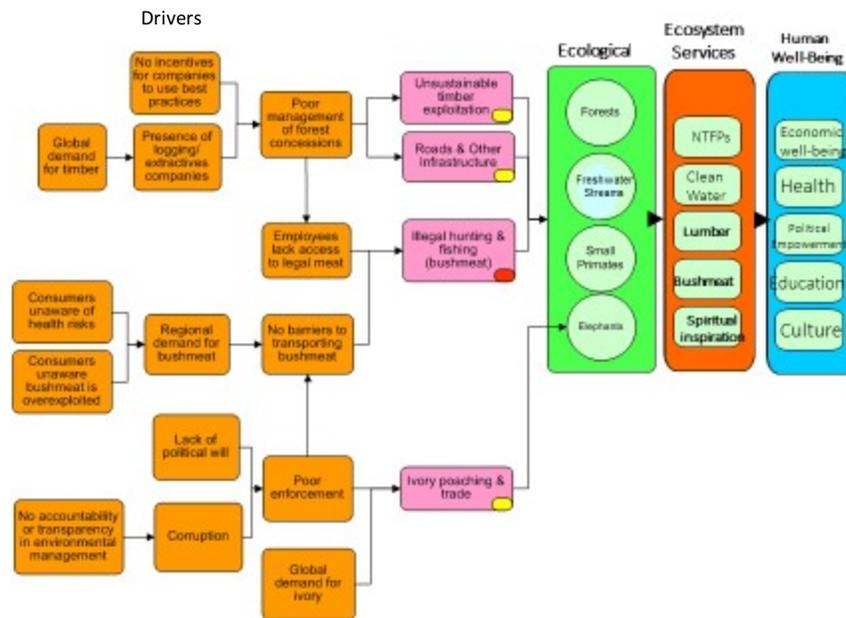


Figure 3. Socio-Economic-Ecological System Diagram (computer generated)

### 3.6 Summarize climate projections in a small number of future scenarios (this work takes expertise and time - it needs to begin before the actual planning can begin)

This step should happen before the main planning group assembles, and is undertaken by the facilitator and a climate modeling expert. Climate scenario planning is useful because it:

- helps us identify adaptation strategies that will work across multiple scenarios
- helps us identify adaptation strategies that will not work in multiple scenarios
- allows us to think of contingency plans for scenarios that look unlikely but are possible
- in short, scenario planning helps us manage uncertainty

Building the climate scenarios consists of a few sub-steps:

1. Construct a "local" climate calendar (Figure 4)
2. Run a full suite (20-30) of global circulation models out to ~2050
3. Look for parameters where the models all agree
4. Look for parameters where the models are different (e.g., summer temperature, fall precipitation)
5. Among the parameters where there is uncertainty (differences between models), choose 2+ parameters. These parameters become the scenario axes. The resulting scenarios are seen in Figure 5.



Figure 4. Local Climate Calendar

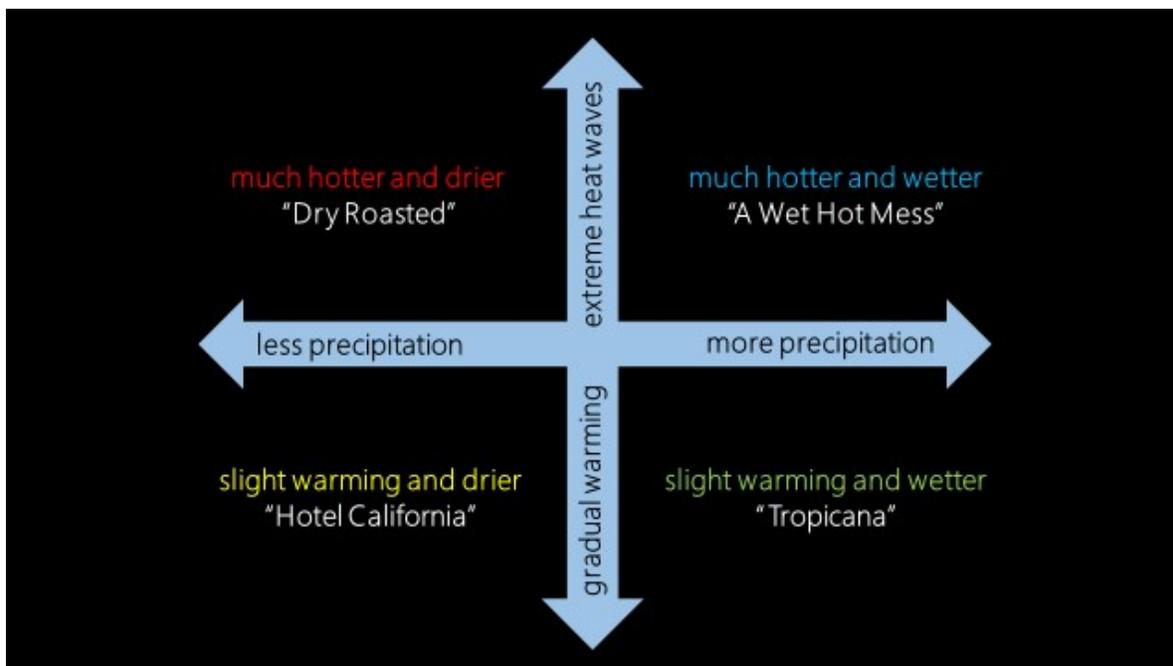


Figure 5. Climate Change Scenarios

### 3.7 Identify likely climate-related impacts to snow leopards and their prey

This step involves considering the impacts of each climate scenario individually on snow leopards, their prey and the wider snow leopard landscape, including human activities, in order to understand the full range of potential impacts. A device called an “ecological drawing” is often used to begin discussing these impacts (Figure 6).

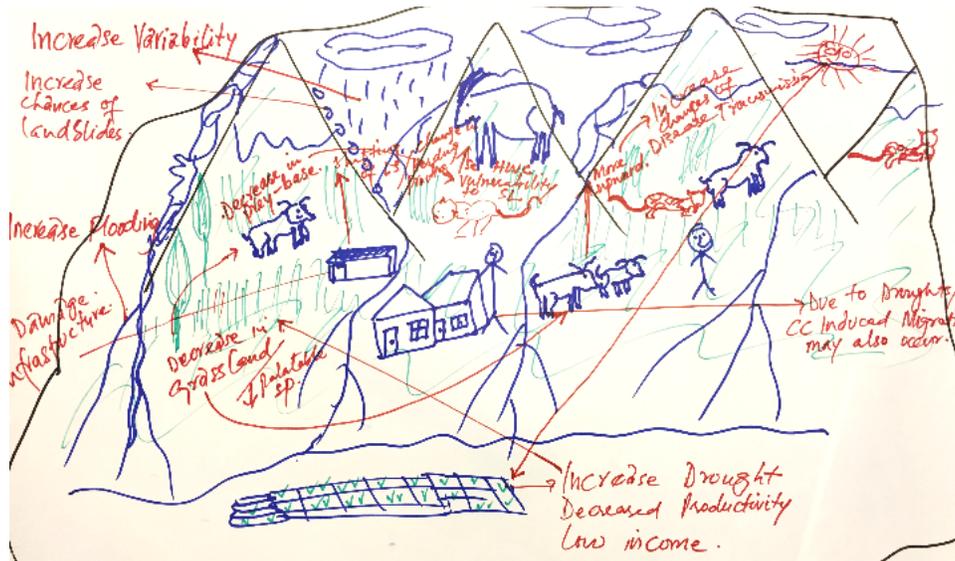


Figure 6. Ecological Drawing

Don't forget to include the impacts of human reactions to climate change. When the impacts are summarized for all four scenarios, the result will look like Figure 7.

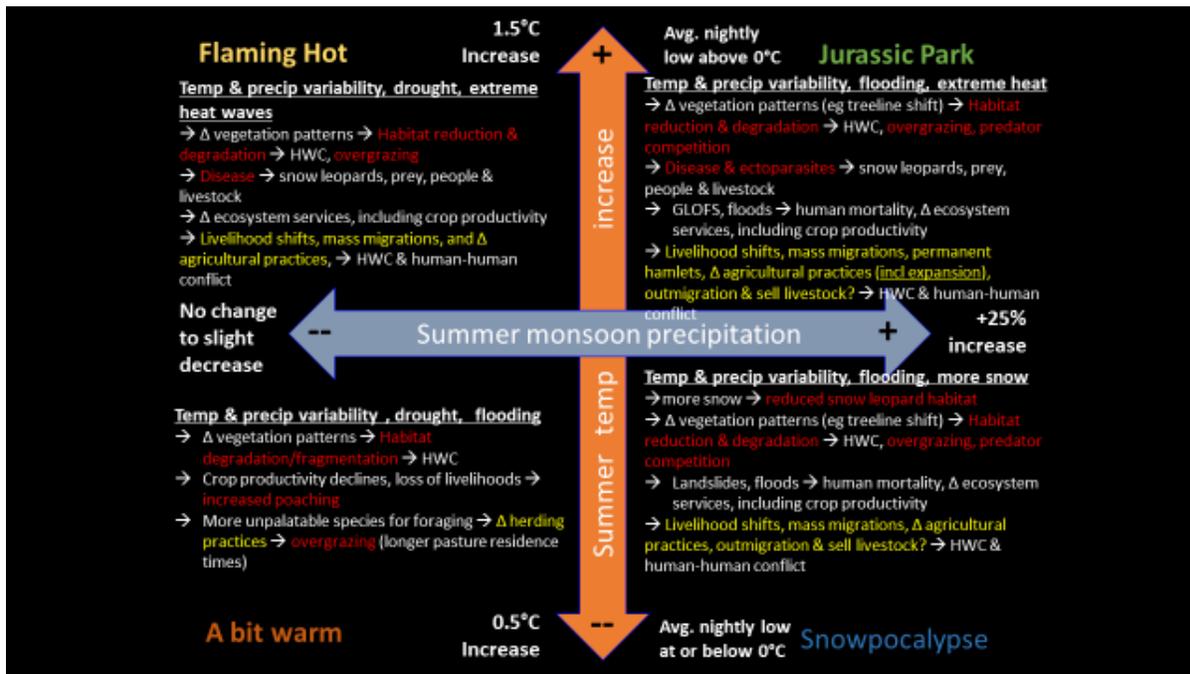


Figure 7. Climate Change Scenarios and Impacts

### 3.8 Add the most important climate impacts back into the General Socio-Economic-Ecological model

This step is tricky, and involves teasing out the climate impacts that are most severe, whether they are directly from climate or a result of human reactions to climate, and inserting them appropriately in the model (Figure 8).

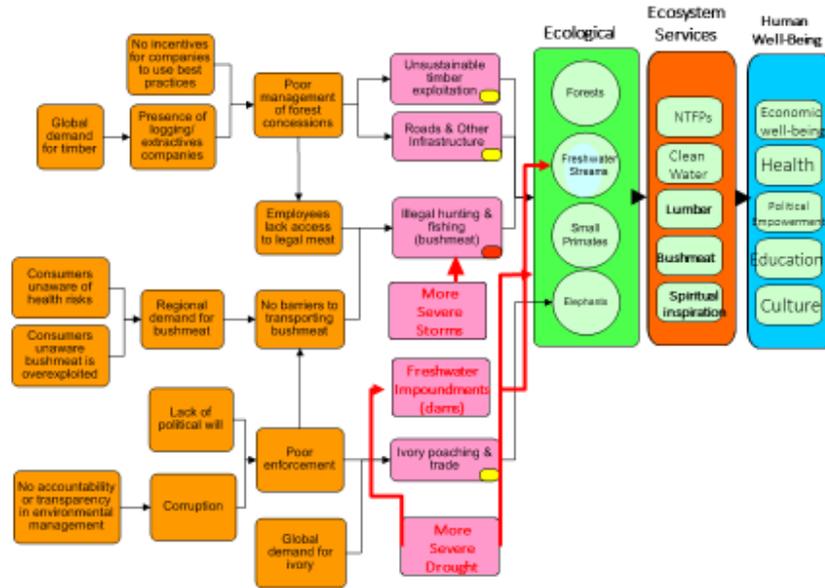


Figure 8. Incorporating Climate Impacts into the General Socio-Economic-Ecological model

### 3.9 Brainstorm interventions that could improve the situation

This step involves using the comprehensive model that has been created as a map to think about all of the possible solutions to the issues. No idea should be dismissed until it has been thoroughly discussed.

### 3.10 Use the climate scenarios to filter the potential interventions

Evaluate potential solutions next – by cost, technical feasibility, potential effectiveness, and especially whether each solution will be useful in all of the climate scenarios explored earlier. If a strategy may not work in one or more of the possible future climate scenarios, then further discussion should take place about whether it is a good idea to invest in. A simple table such as the one below (Table 5) may help:

Strategies	Strategy Selection Criteria				
	Impact	Cost	Feasibility	Work in all Climate Scenarios?	

Table 5. Strategy Selection Table

### 3.11 Show the logic of the selected strategies (including the activities that will lead to beneficial outcomes)

This step is an extremely important and helpful step that can benefit any conservation project: laying out the logic, or “theory of change” of the strategy, so that it is clear, even to latecomers, how the strategy is supposed to work. It also allows the strategy to be tracked (is it working the way it was intended?), and modified as necessary.

The tool most often used to accomplish this task is called a “results chain” (Figure 9) – a chain of results mixed with activities.

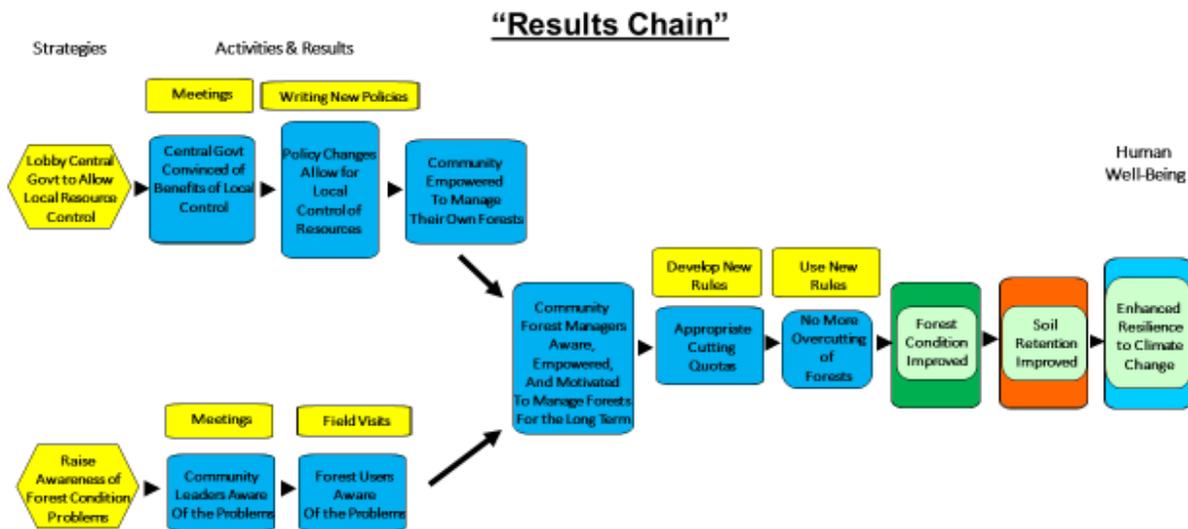


Figure 9. Results Chain

This is a brief overview of a suggested method for planning for the conservation of a snow leopard landscape, a protected area or any other conservation object. After these steps have been completed, a team should be able to turn the products into a management plan document.

## 4. Key Resources

- [Trained Open Standards Coaches](#): Having a trained “coach” – a facilitator who knows the method, will always be helpful.
- [The Open Standards for the Practice of Conservation](http://cmp-openstandards.org/): The basic planning framework. [http://cmp-openstandards.org/]
- [Conservation Coaches Network](http://www.ccnetwork.com): A global network of facilitators with training to lead Open Standards processes. [www.ccnetwork.com]
- [Miradi](http://www.miradi.org): Adaptive management software for conservation projects. An optional piece of software built to support the Open Standards planning process. [www.miradi.org]

## 5. Trained Open Standards Coaches

**John Morrison** is an experienced coach from the Conservation Coaches Network (CCNet) who can either help you directly or help find someone who can assist.

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