

Addressing Social Results and Human Wellbeing Targets in Conservation Projects



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1. Introduction

Conservation is inevitably a social undertaking. Humans serve as conservation stewards, they depend on in-tact resources for their livelihoods and wellbeing, and they exert threats to conservation through unsustainable use or when they fail in their role as stewards. Given this situation, it is not surprising that many conservation teams and organizations feel compelled to address or at least think about human wellbeing when developing their conservation projects.

Conservation teams, however, need to be clear about what they are trying to achieve. Is their main focus conservation? Or is it human wellbeing? Many will be tempted to say it is both. While these two aims can be compatible, they more often involve some level of trade-offs. It is important for teams to recognize this and clearly define what falls inside and outside the scope of their project.

Purpose of This Document

This document is designed to serve as a companion document to the *Open Standards for the Practice of Conservation* to provide greater detail and guidance on the concept of human wellbeing targets, which was incorporated as an update to the *Open Standards* in 2012. It is important to keep in mind that the *Open Standards* are developed for those organizations and teams that have conservation as their primary mission. They are not meant to address multi-aim development projects. As such, this guidance considers human wellbeing in the context of how it contributes to or is derived from conservation actions.

The Conservation Measures Partnership (CMP) decided to formally address the issue of human wellbeing, as many organizations applying the *Open Standards* were looking for more explicit direction on human wellbeing in the context of conservation projects. In large part because this formal guidance did not exist, conservation teams were struggling with the topic and trying their best to interpret how they should incorporate human wellbeing. The result was a wide and inconsistent array of approaches to defining, describing, and addressing human wellbeing. One of the greatest values of the *Open Standards* is that they provide a consistent framework for approaching conservation project planning and management. For a while, this framework was missing for human wellbeing, but with the 2012 updates, the *Open Standards* have attempted to provide structure to the wide array of approaches that were being taken.

The revisions to the *Open Standards* discuss human wellbeing targets in general, high-level terms. We have developed this guidance document to provide more detailed advice and examples. We see it as a dynamic, living draft that should be tested in the field and improved over time as we learn more about considering human wellbeing in the context of conservation projects.

This guidance document is not meant to advocate the use (or not) of human wellbeing targets in conservation projects. Whether to include human wellbeing is a decision a team will have to consider in light of its context and those involved in the project. If a team determines that it should address human wellbeing, then it is important to read and apply this guidance.

2. Defining Human Wellbeing, Ecosystem Services, and Key Relationships

Across the social and natural sciences, a lot of thinking has gone into discussing and parsing out definitions related to human wellbeing and ecosystem services. With this in mind, the Conservation Measures Partnership has used widely-accepted definitions and descriptions developed by the Millennium Ecosystem Assessment (2003).

Human Wellbeing

The Millennium Ecosystem Assessment (MA) defines human wellbeing as including five dimensions:

- **Necessary material for a good life:** including secure and adequate livelihoods, income and assets, enough food at all times, shelter, furniture, clothing, and access to goods;
- **Health:** including being strong, feeling well, and having a healthy physical environment;
- **Good social relations:** including social cohesion, mutual respect, good gender and family relations, and the ability to help others and provide for children;
- **Security:** including secure access to natural and other resources, safety of person and possessions, and living in a predictable and controllable environment with security from natural and human-made disasters; and
- **Freedom and choice:** including having control over what happens and being able to achieve what a person values doing or being.

Although these categories have been widely vetted, they may not be completely exhaustive or applicable to all situations one might encounter when thinking about human wellbeing in the context of the *Open Standards*. Specifically, when applying these definitions to human wellbeing targets (see following section), it may make sense to expand or refine the interpretations. For example, one could think of health as including physical, emotional, mental, and spiritual dimensions. Likewise, it might not be clear where to categorize access to education. In general, the categories should serve as a framework for thinking about human wellbeing, but where one categorizes the element is less important.

Human Wellbeing Targets

Drawing upon the Millennium Assessment's framework, the *Open Standards for the Practice of Conservation* define human wellbeing targets as aspects of human wellbeing that the project chooses to focus on. In the context of a conservation project, human wellbeing targets focus on those components of human wellbeing affected by the status of conservation targets. This last aspect offers an important clarification. Though a conservation team may care about all aspects of human wellbeing, if its ultimate aim is conservation, it should focus on human wellbeing as it is derived from or dependent upon conservation. So, for example, a team might choose human wellbeing targets of fisheries livelihoods or forestry livelihoods, as these are clearly connected to the health of fish species or forest conservation targets. In contrast, the team would probably not focus on human wellbeing targets related to literacy or religious freedom. They are important elements of human wellbeing, but they are not directly connected to biodiversity conservation.

Thus, if teams use diagrams like conceptual models and results chains, they should ideally only include human wellbeing targets clearly dependent upon biodiversity conservation. In addition and as implied above, the categories of human wellbeing are not important to display in a

diagram and could even lead to confusion. We recommend that teams simply use these categories to make sure that what they are identifying as a human wellbeing target is indeed an aspect of human wellbeing – and not, for example, an ecosystem service or a socially beneficial strategy or result. Later sections will address these points in more detail.

Ecosystem Services

Ecosystem services are the services that intact, functioning ecosystems, species, and habitats provide and that can benefit people. The Millennium Ecosystem Assessment (2003) offers four categories of ecosystem services and examples within those categories:

Provisioning services: Products obtained from ecosystems. Examples include:

- Food (including seafood and game), crops, wild foods, and spices
- Fuelwood
- Water
- Minerals (including diatomite)
- Pharmaceuticals, biochemicals, and industrial products
- Energy (hydropower, biomass fuels)

Regulating services: Benefits obtained from regulation of ecosystem processes. Examples include:

- Carbon sequestration and climate regulation
- Waste decomposition and detoxification
- Purification of water and air
- Crop pollination
- Pest and disease control

Supporting services: Services necessary for production of all other ecosystem services.

Examples include:

- Nutrient dispersal and cycling
- Seed dispersal
- Primary production
- Soil formation

Cultural services: Non-material benefits obtained from ecosystems through spiritual enrichment, cognitive development, reflection, recreation, and aesthetic experiences. Examples include:

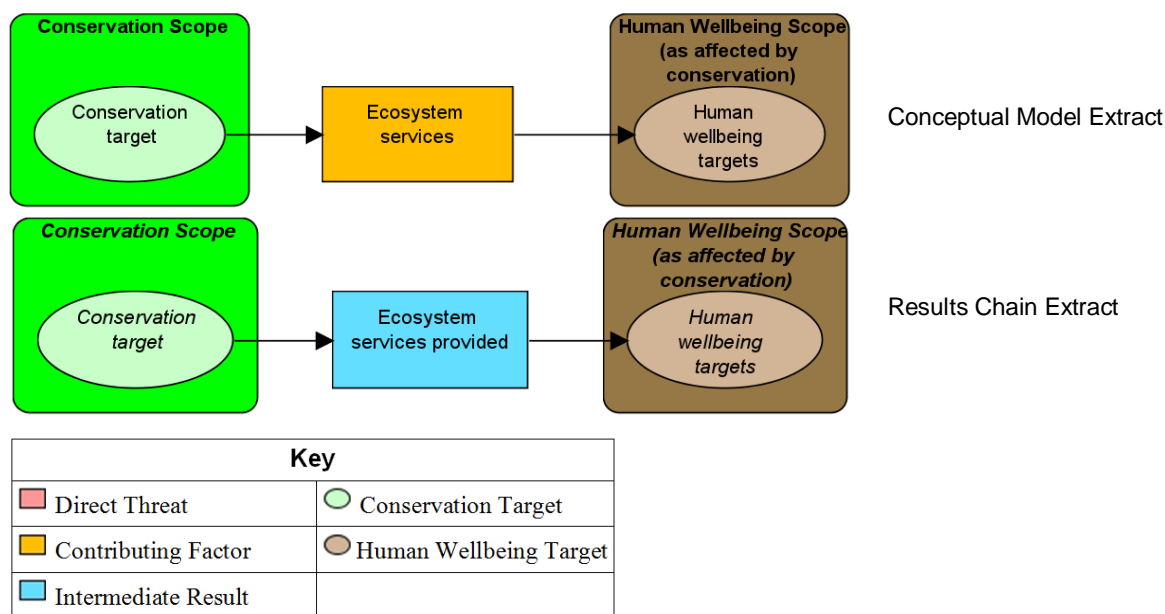
- Cultural diversity
- Spiritual and religious values
- Knowledge systems (traditional and formal)
- Educational values (Ecosystems and their components and processes provide the basis for both formal and informal education in many societies)
- Inspiration
- Aesthetic values

As with the categories for human wellbeing, it may not always be clear where to place an ecosystem service. For example, the Millennium Ecosystem Assessment classifies crop pollination as a regulating service, while it classifies seed dispersal as a supporting service. These categories should serve as a guide for thinking about what an ecosystem service is and what sorts of ecosystem services conserved biodiversity targets might provide. In terms of representing ecosystem services within an *Open Standards* context, it is more important to understand what an ecosystem service is than to correctly classify it.

Relationship between Conservation Targets, Ecosystem Services, and Human Wellbeing Targets

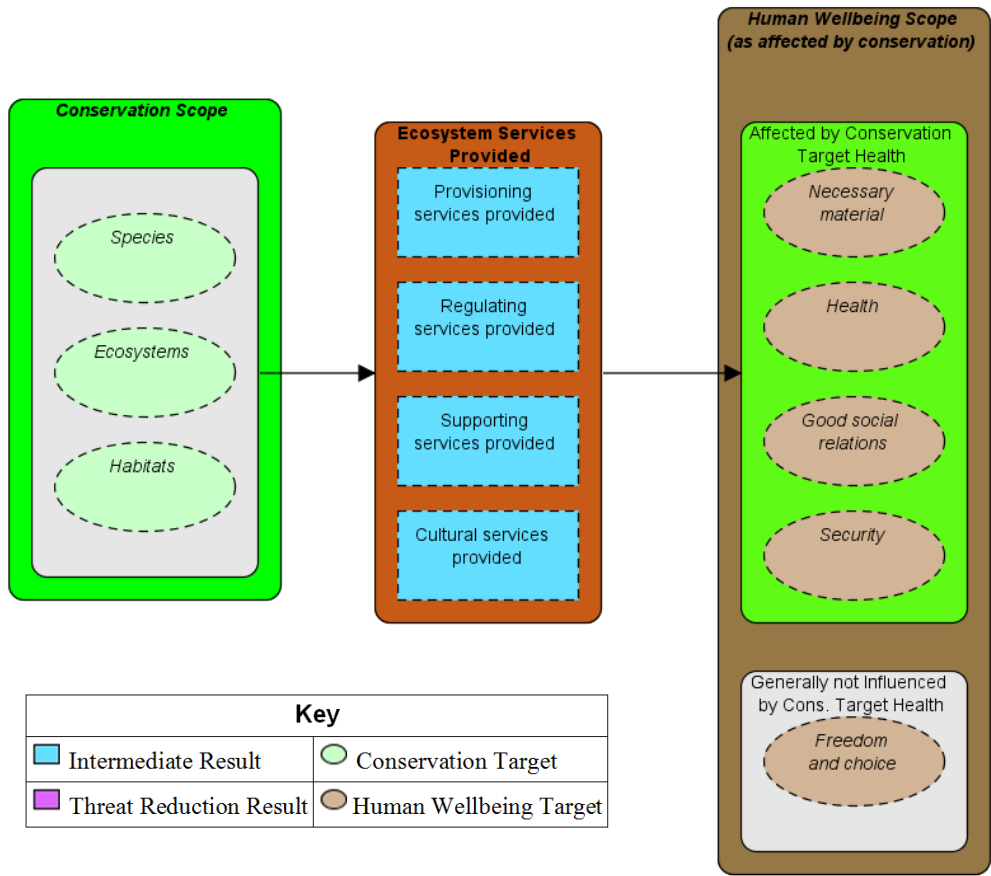
In a conceptual model, human wellbeing targets are shown to the right of conservation targets, influenced by the status of conservation targets and the ecosystem services that depend on biodiversity conservation (Figure 1). Likewise, a results chain would show how conservation targets in good health provide ecosystem services that support human wellbeing.

Figure 1. General Relationship between Conservation and Human Wellbeing Targets



We could expand these models to more detail, showing the Millennium Assessment categories (Figure 2, results chain only shown for simplicity's sake). In this figure, we have distinguished between those MA categories that could more easily be linked to ecosystem services and those that will mostly fall outside of the realm of influence by ecosystem services. As a matter of practice, we recommend that teams that use diagrams limit those diagrams (and more importantly, their planning efforts) to only those human wellbeing targets directly linked to or influenced by conservation targets and the ecosystem services they provide.

Figure 2. General Relationship between Conservation Targets and Human Wellbeing Targets with Millennium Assessment Categories

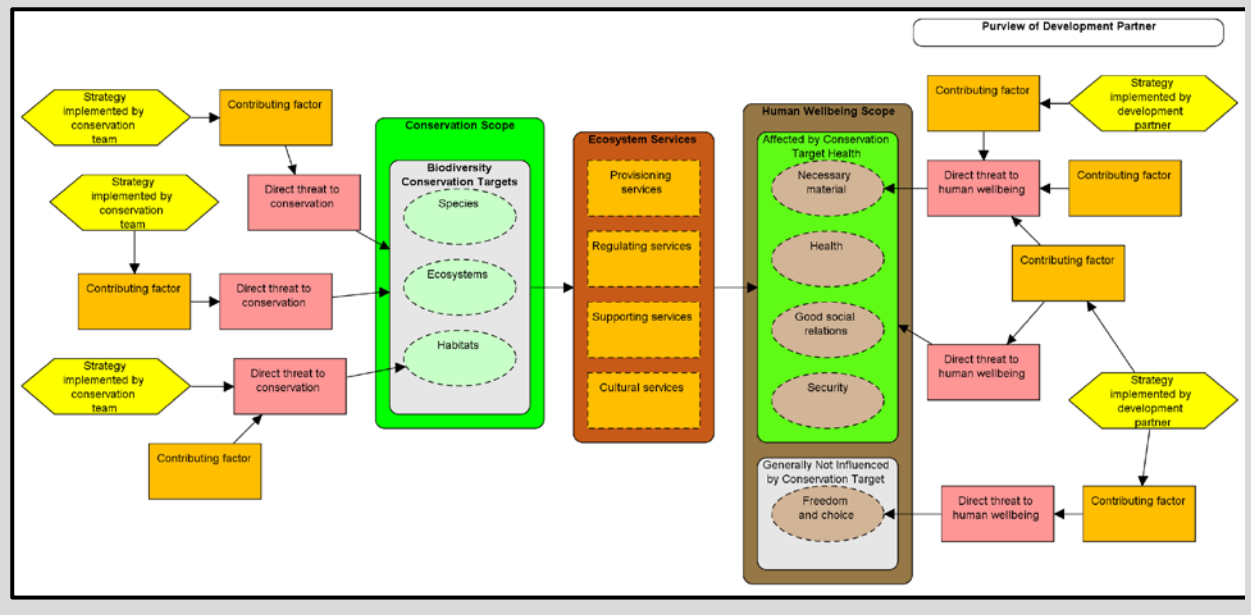


Box 1. Mapping Partner's Work on Human Wellbeing

Some conservation teams may work with other teams that focus exclusively on aspects of human wellbeing, such as health, development, or education. In such cases, teams may find it useful to map one another's work in a conceptual model, such as the one below – thus, illustrating the work both groups are doing and where or how it intersects and offers opportunities for collaboration.

These conceptual models should be used exclusively for communication purposes. A conservation team should be very careful to be clear about what part of the model they are working to influence (i.e., the left-hand side) and not try to address those factors on the right-hand side that fall outside the purview of a conservation team.

The conservation team can still show how it contributes to human wellbeing, but it should do so based on the guidance offered throughout this document. Specifically, it can show how the strategies it implements in service of conservation have direct human wellbeing benefits and/or it can show how functioning conservation targets provide ecosystem services that contribute to human wellbeing.



3. Clarifying Socially Beneficial Results and Human Wellbeing Targets

Some conservation teams want to be able to show how their projects have benefits for humans, as well as for conservation. However, it can be confusing to figure out when such benefits should be human wellbeing targets or when they are simply benefits from a conservation strategy. One can think of conservation projects as contributing to human wellbeing via two primary avenues: 1) conservation strategies that have a social focus and provide direct benefits to humans as a means to achieve or while also contributing to conservation goals (Figure 3); or 2) conserved biological targets which provide ecosystem services needed for human wellbeing (i.e., human wellbeing targets, Figure 4).

Case 1. Human Wellbeing Enhanced Directly via a Socially Oriented Strategy: In the first case, the conservation strategy (e.g., ecocertification of timber harvesting) provides social benefits that are derived from a strategy that is done in service of conservation. The social benefits are a direct and necessary result of the strategy and one that benefits humans, as shown below. Note that the figure does not show human wellbeing targets because this team did not feel a need to explicitly address human wellbeing as an additional and farther downstream benefit of their conservation project.

Figure 3. Socially oriented conservation strategy producing socially beneficial results

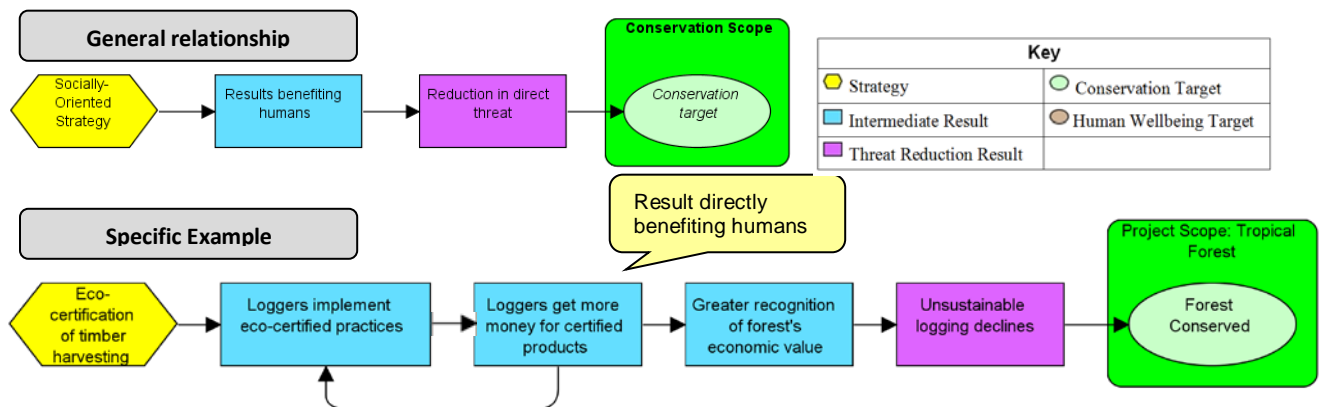


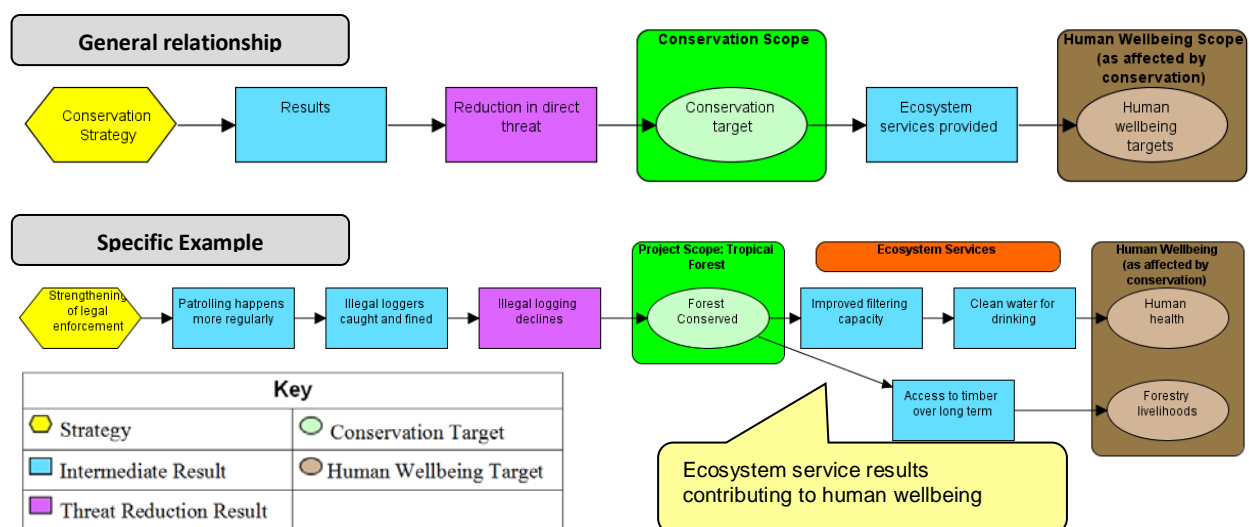
Table 1 provides some examples of socially-oriented strategies and their benefits. These benefits are directly linked to the strategies, and they are also necessary results for that strategy to be successful in achieving its conservation goals. Clearly, they also do contribute to human wellbeing, and one could make the link between the result and the human wellbeing targets, if desired (Case 3 below, Figure 5).

Table 1. Examples of socially-oriented strategies and their benefits

Conservation Strategy	Results benefiting humans (<i>and necessary for achieving conservation</i>)
Alternative livelihoods	Increased income Diversified income sources
Eco-certification	Access to niche markets Increased income
Sustainable resource management/ extraction	Improved ability to manage resources sustainably Increased yields (in some cases)
Improving governance	Increased ability to influence decision making Empowerment Reduced corruption / better services
Capacity building, technical assistance	Improved technical skills Improved ability to manage
Environmental education	Increased knowledge and awareness

Case 2. Human Wellbeing Enhanced via Ecosystem Services: In the second case, a conservation team might implement a strategy that has a less direct or apparent social benefit (e.g., strengthening legal enforcement of logging laws or restoration of an important native timber species). The strategy and overall project, however, can contribute to human wellbeing via the ecosystem services provided by a well-conserved forest (Figure 4).

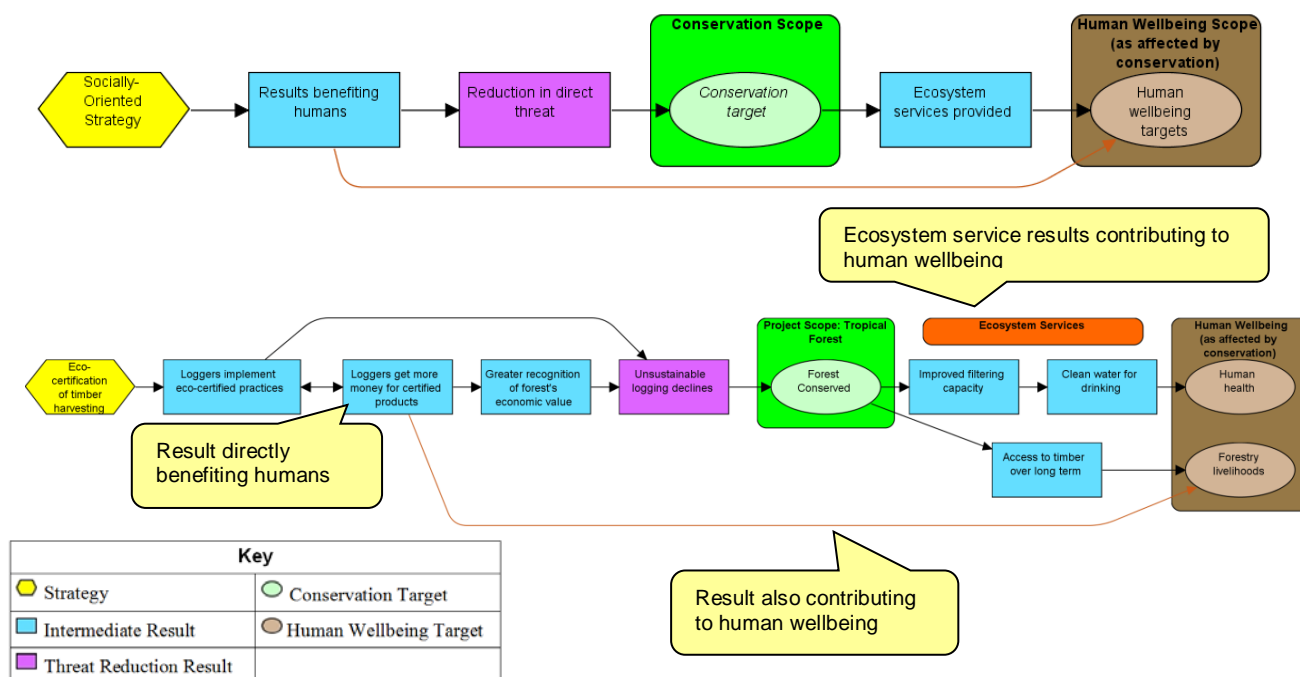
Figure 4. Conservation strategy contributing to human wellbeing via ecosystem services



Case 3. Human Wellbeing Enhanced via Multiple Avenues: While it can be helpful to think of these two main avenues for how conservation improves human wellbeing, they are not

mutually exclusive. A conservation strategy with direct social benefits could also contribute to human wellbeing indirectly via conserved biological targets and ecosystem services (Figure 5). In this example, loggers benefit financially from eco-certification – this is a direct result from the strategy and a necessary result to ensure that they continue to implement eco-certified practices and decrease their use of unsustainable logging practices. The team could then carry the logic all the way through ecosystem services and human wellbeing. They could also show that the income that loggers get from certified products does have a direct effect on forestry livelihoods (brown arrow in figure below).

Figure 5. Socially-oriented conservation strategy contributing to human wellbeing via multiple avenues

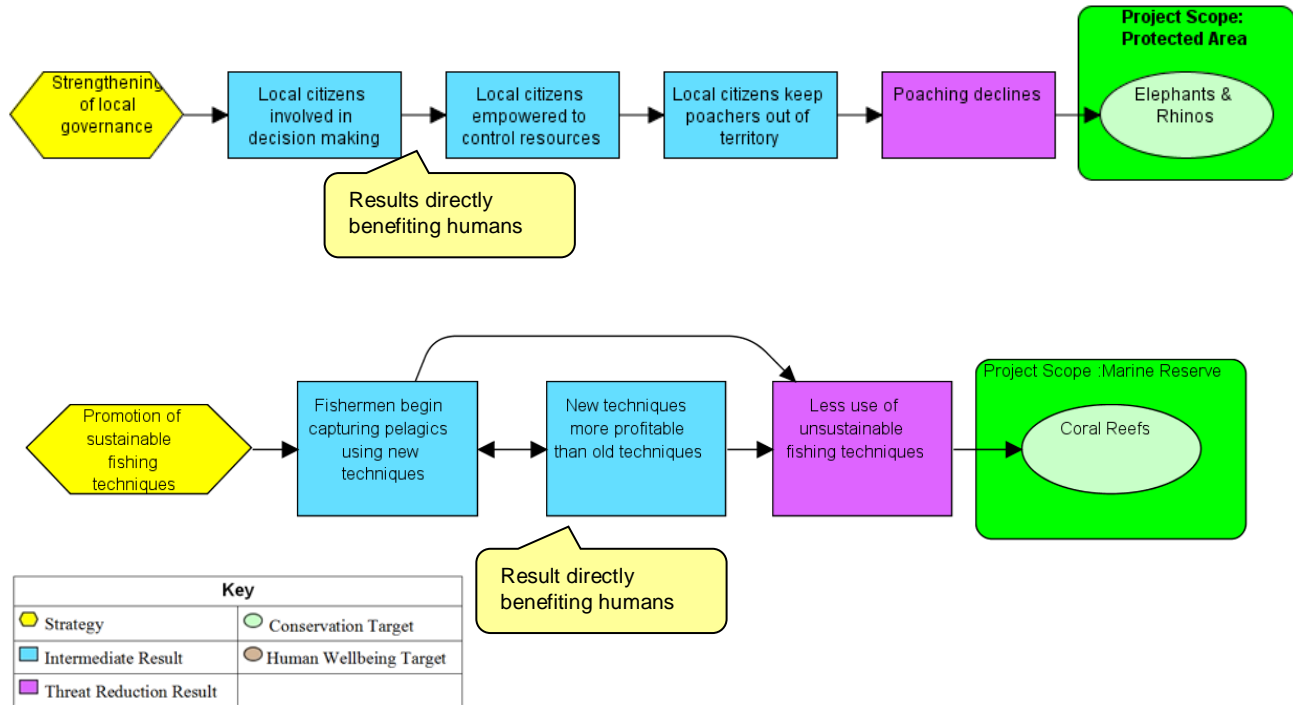


Additional Examples

It is not feasible to develop an exhaustive library of the way conservation projects could directly or indirectly contribute to human wellbeing. The following figures, however, should help guide conservation teams seeking for ways to conceptually portray these relationships. As you review these, keep in mind that, depending on your team's needs, you may want to show multiple relationships, as in Figure 5, or keep it simpler, as in Figure 3. There is no "right" level of detail, though teams should be careful to make sure that their results chains accurately classify their strategy's contribution to human wellbeing and that they are easily understood by external audiences.

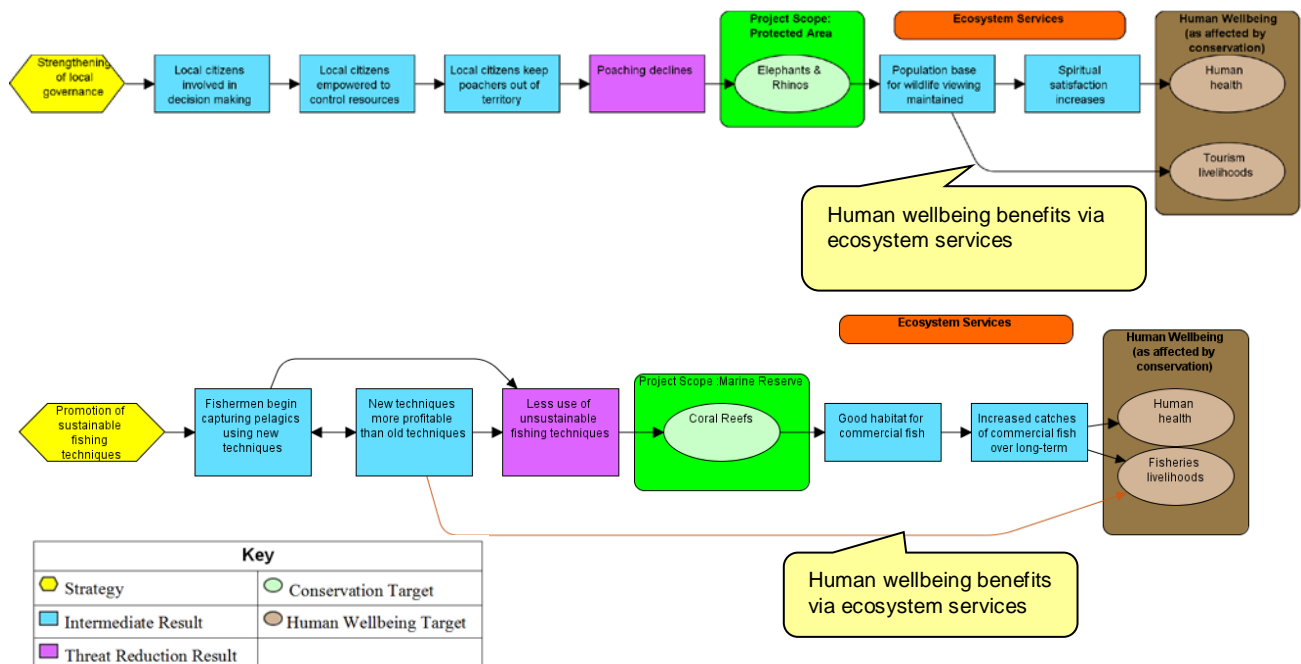
Examples of socially-oriented conservation strategies with direct benefits (Case 1):

In these cases, we have only highlighted the direct benefit to humans, resulting from a socially-oriented conservation strategy.

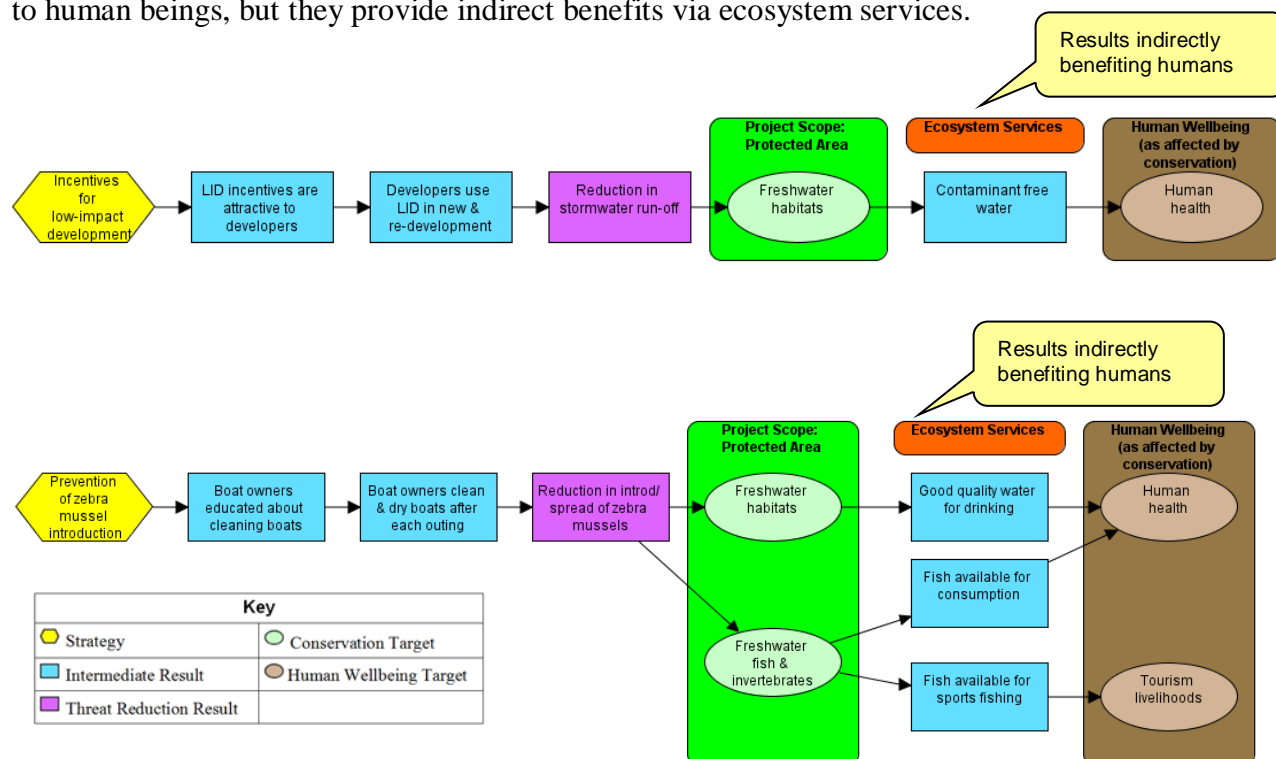


Examples of conservation strategies with indirect benefits to human wellbeing targets: (Cases 2 and 3)

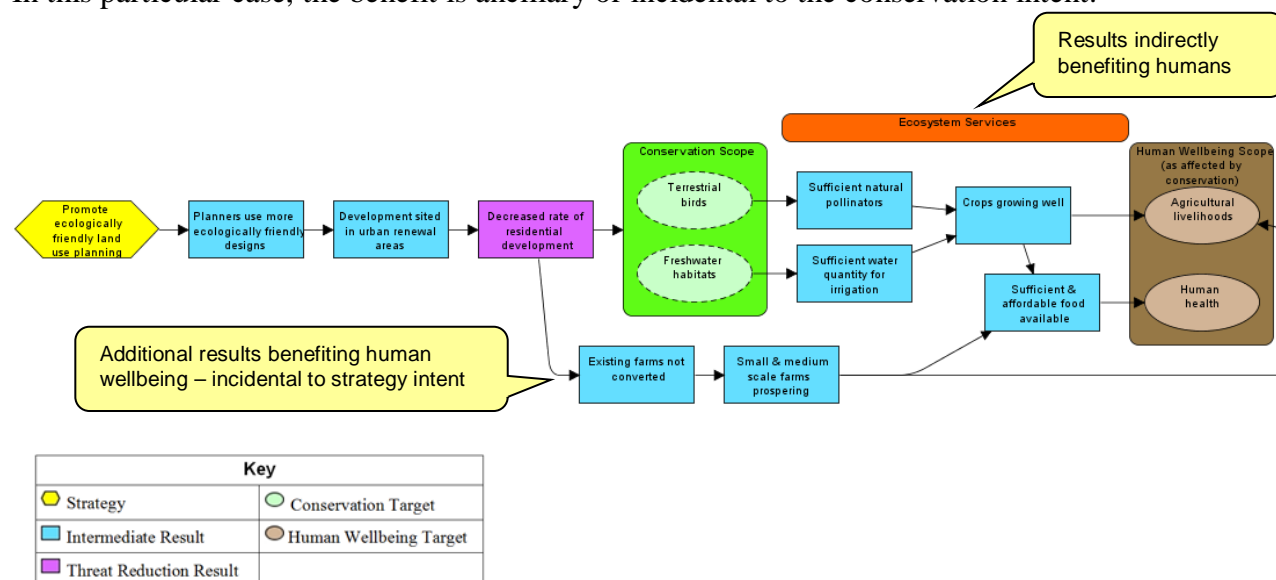
We could take the two examples above and show how they also contribute to human wellbeing targets, as shown in the figures below. A team could choose to end the chains at the conservation target (as above) or carry out the logic all the way to human wellbeing, depending on their needs and interests.



The following examples include conservation strategies that do not have obvious direct benefits to human beings, but they provide indirect benefits via ecosystem services.



In the following example, there are human wellbeing benefits from ecosystem services, but one could also make the argument that decreasing residential development directly benefits agricultural livelihoods without going through the conservation target and ecosystem services. In this particular case, the benefit is ancillary or incidental to the conservation intent.



4. Developing Goals for Human Wellbeing Targets

Proposed Conditions for Goal Setting for Human Wellbeing Targets

The *Open Standards for the Practice of Conservation* were developed for those organizations and teams that have conservation as their primary mission and were not meant to address multi-aim development projects. Nevertheless, the *Standards* acknowledge that teams may want or need to clarify their contribution to human wellbeing and thus, identify human wellbeing targets. If a team does choose to set human wellbeing targets, then the *Standards* recommend that the team should set goals for these. However, whether it makes sense for a team to set human wellbeing goals will often depend on the circumstances under which it is operating. Given that goal setting increases the costs and complexity of the process, teams should carefully consider whether to set goals. Here we provide some conditions to help teams make that decision.

A team should set human wellbeing goals if:

- It is required to demonstrate at its site that conserving biodiversity provides ecosystem services which benefit humans – this requirement might be statutory or linked to funding;
- Its organization has higher level mission and/or goals and objectives related to human wellbeing;
- Stakeholders involved in the process want or need to see change in human wellbeing (and will not be satisfied with simply showing the conceptual linkages);
- It can increase support for its efforts and broaden its conservation impact by measuring human wellbeing benefits;
- Failure to set human wellbeing goals will undermine its ability to achieve its conservation goals; and/or
- It has the resources to invest in setting and monitoring goals for human wellbeing.

A team should NOT set human wellbeing goals if:

- Stakeholders involved in the process have an interest in human wellbeing, but they are comfortable with just understanding the conceptual linkages between biodiversity conservation and human wellbeing;
- It does not have funding or legal requirements to show human wellbeing impact;
- It is working with a narrow group of stakeholders whose main interest is biodiversity conservation; and/or
- Most importantly, it has limited resources and setting and monitoring human wellbeing goals would compromise its ability to implement its project well and monitor biodiversity results.

If a team does not set goals for human wellbeing targets, does that mean it does not care about human wellbeing or think it is less important than biodiversity? Absolutely not. This goes back to the question of whether the team's main emphasis is biodiversity conservation (but it still cares about human wellbeing) or whether it is human wellbeing (again, the team might still care about biodiversity). Working under the assumption that a team's main emphasis is biodiversity conservation, teams should be careful not to spread resources too thinly and risk diluting conservation aims. If a team sets goals for human wellbeing, then it is implying that it will

measure them and, to some degree, hold the team accountable for improving human wellbeing. Thus, teams need to consider what is most appropriate for their situations.

Proposed Criteria for “Good” Human Wellbeing Goals

Drafting goals for human wellbeing targets is probably best done in a process parallel to setting goals for biological targets, although different stakeholders may be involved. The final set of goals should clarify how a team believes human wellbeing benefits from biodiversity conservation and the ecosystem services it provides. Central to this is the question whose human wellbeing a team is aiming to affect. As an example, suppose a team is developing a human wellbeing goal for livelihoods linked to shrimp fisheries. The shrimp is currently trawled by fishermen from outside the region and processed in foreign factories. When setting a goal, the team needs to consider if and how to deal with benefits that accrue to people outside the area, possibly in other countries and what this means for stakeholder representation in the participatory process. It also needs to decide if and how to consider future generations.

By laying out the causal relationships in a results chain format, a team has taken that first step in defining human wellbeing benefits and, thus, what goals make sense in the context of a conservation project.

When developing human wellbeing goals, it is important not to confuse them with short-term outcomes from a socially-beneficial strategy (see Section 3) or with non-ecosystem related goals for human wellbeing. The following criteria help teams overcome this confusion.

A good human wellbeing goal should meet all of the following criteria:

- 1) linked to a human wellbeing target;
- 2) directly dependent on ecosystem services provided by conservation targets;
- 3) does not compromise the ability of conservation targets to adequately deliver any ecosystem service; and
- 4) time limited, measurable and specific (like conservation goals).

Using Key Attributes to Set Human Wellbeing Goals

As with conservation targets, it can be helpful to consider key attributes of human wellbeing targets when developing goals for them. Key attribute of human wellbeing targets are aspects of a target that if present, define a healthy target and if missing or altered, would lead to the outright loss or extreme degradation of that target over time. Key attributes of human wellbeing can be quite broad and include aspects that fall well outside the domain of conservation. For example, a key attribute of human health could be access to good quality health care, or a key attribute for tourism livelihoods could be good marketing skills.

In the context of a conservation project, however, key attributes should be linked directly to the ecosystem services humans can access. For the previous examples, access to potable water in sufficient quantity would be a key attribute of human wellbeing that is directly linked to an ecosystem service of water filtration and purification. Likewise, reliable access to natural areas/wildlife in good condition could be a key attribute of a tourism livelihoods target. The following table provides some additional examples of attributes that are dependent upon

conservation and those that fall outside the influence of well-functioning conservation targets and the ecosystem services they provide.

Table 2. Examples of Key Attributes for Human Wellbeing Targets

Human Wellbeing Target	Key Attributes	
	<u>Within</u> Conservation Realm	<u>Outside</u> Conservation Realm
Forestry dependent livelihoods	<ul style="list-style-type: none"> • Reliable access to timber sources 	<ul style="list-style-type: none"> • Access to markets, right contacts • Good business acumen
Physical health	<ul style="list-style-type: none"> • Access to clean water in sufficient quantity • Access to clean air • Access to areas for recreation 	<ul style="list-style-type: none"> • Access to good quality health care
Security from natural disasters	<ul style="list-style-type: none"> • Presence of natural buffers • Predictable water flows • Natural fire regime 	<ul style="list-style-type: none"> • Well-constructed homes • Access to emergency services
Spiritual health	<ul style="list-style-type: none"> • Ability to access natural areas/ wildlife 	<ul style="list-style-type: none"> • Ability to balance competing priorities • Good relationships with friends & family

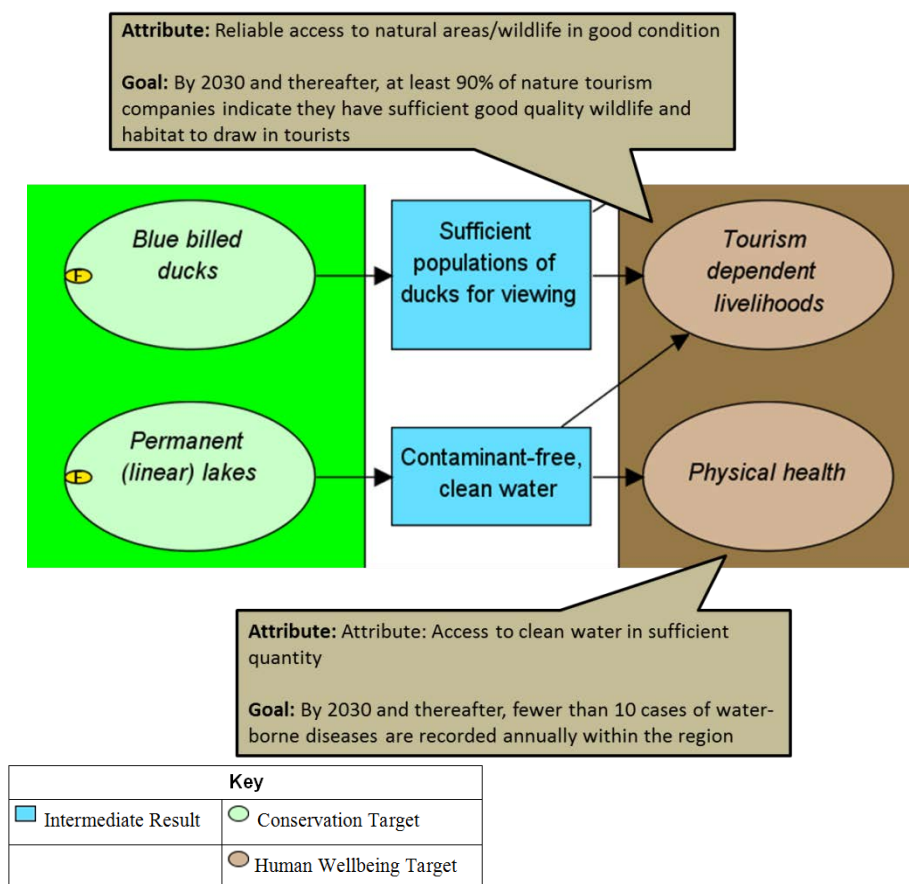
Key attributes can provide a framework for nesting aspects of human wellbeing under broader targets and can help teams be more specific about what aspects of human wellbeing benefit from the ecosystem services provided by functioning ecosystems, habitats, and species. In doing so, teams should be aware of potential tensions between maximizing human wellbeing goals and what that means for conservation and ecosystem services. For example, having enough water to keep a natural system functional and healthy is not the same as having enough water to satisfy the needs of commercial farmers or dense urban sectors. Keeping in mind the criteria for a good human wellbeing goal should help conservation teams be clear that conservation is their primary goal and that they should not try to maximize ecosystem services for human wellbeing at the expense of biodiversity conservation. When setting goals, it is also important to make sure the wellbeing goal is based on a key attribute linked to an ecosystem service.

Ideally, the goal should be focused and express the ability to access a particular ecosystem service because broader goals often go beyond the realm of what can be reasonably influenced by conservation efforts. For example, in Figure 6, the team might set a goal of: “By 2030 and thereafter, at least 90% of nature tourism companies indicate they have sufficient good quality wildlife and habitat to draw in tourists.” This goal is clearly within the realm of influence of a conservation project because it is directly tied to the ecosystem services of “sufficient populations of ducks for viewing” and “contaminant-free, clean water.” The attribute is also tied to the ecosystem service and an important aspect of tourism dependent livelihoods.

Alternatively, a team could set a goal, such as: “By 2030 and thereafter, the number of nature tourists visiting the area increases by at least 25%, as compared to 2010 levels.” Achieving this

goal, however, requires that several assumptions outside the realm or influence of a traditional conservation project must hold. For example, the goal assumes a sufficiently strong economy and the absence of war, disease, or other natural hazards that would discourage people from visiting the area. We recommend that teams set goals that are clearly tied to and dependent upon an ecosystem service. If, however, a team does set broader goals, it should clarify its assumptions, either as written text or graphically.

Figure 6. Example Goals and Attributes for Human Wellbeing Targets



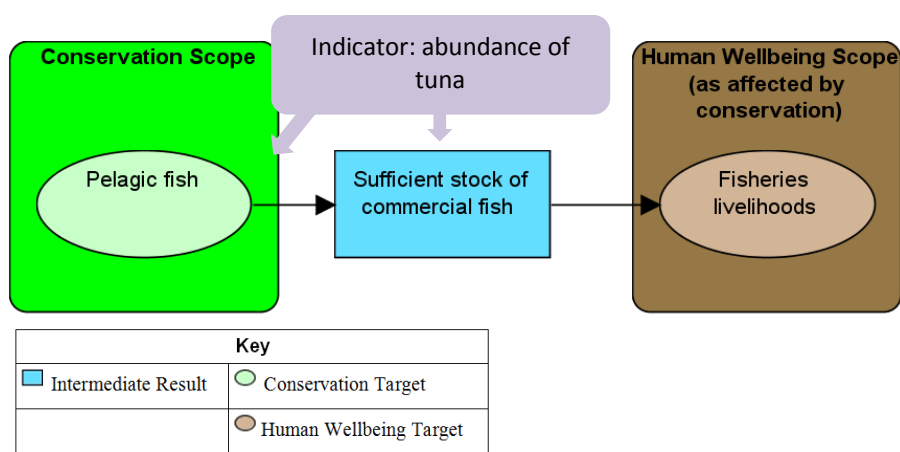
5. Developing Indicators for Ecosystem Services

If a team has identified ecosystem services and wishes to monitor whether those services are improving, it will need to select a set of indicators. Because a healthy, functioning conservation target provides ecosystem services, we could make the argument that indicators for ecosystem services can also be indicators of conservation target health. The Millennium Ecosystem Assessment (2005) supports this rationale, stating that ecosystem services are characteristic for a functioning ecosystem and that people judge the status of an ecosystem by its ability to provide them. Thus, a good place to start thinking about potential indicators for ecosystem services is to look at a team's indicators for its conservation targets. Keep in mind, however, that not all indicators of conservation target health are indicators of ecological services.

We can think of two main steps for identifying indicators for ecosystem services: 1) Review existing conservation target indicators (typically identified in the viability assessment step) to determine if they are suitable for measuring ecosystem services; and 2) Identify new indicators not already covered under the conservation targets.

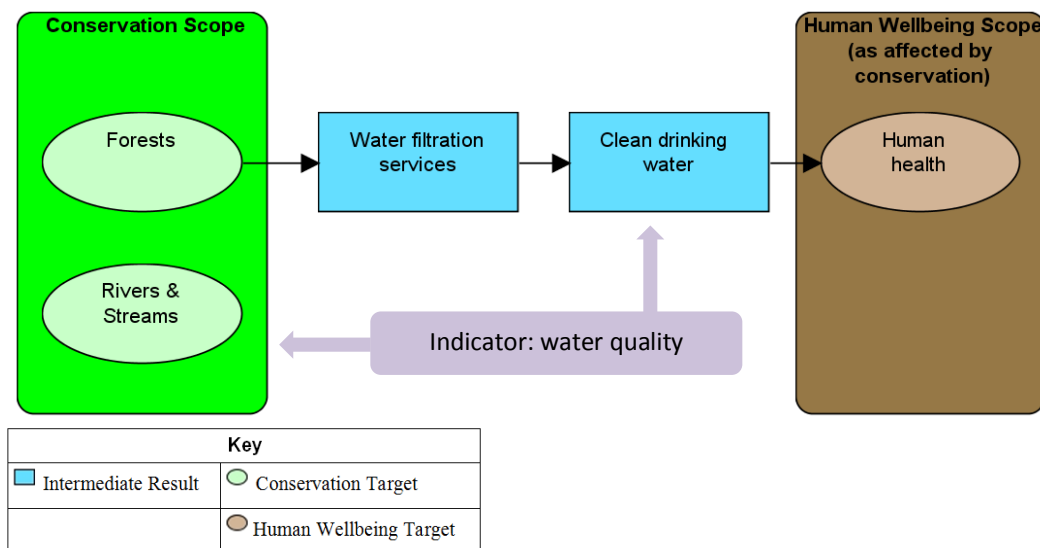
1) Review conservation target indicators: As a rule of thumb, teams should not do more monitoring than needed for good management decisions. Thus, if a project has an indicator that can work for both conservation target and ecosystem services purposes, it should use that single indicator. For example, suppose a project has a conservation target of pelagic fish species and an indicator of abundance of specific tuna species. An ecosystem service provided by well-conserved pelagic fish target is a sufficient stock that could be harvested and consumed by humans. As shown in Figure 7, the indicator for that stock (ecosystem service) would be the same as the indicator for the conservation target (i.e., abundance of specific tuna species).

Figure 7. Example of indicator relevant for ecosystem service and conservation target



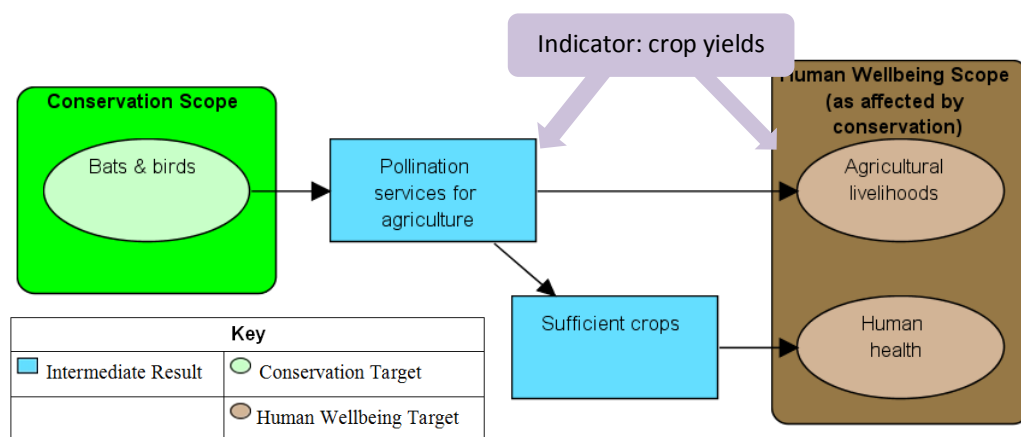
In some cases, a team may find that the ecosystem service provided by a conservation target is better reflected in an indicator for another target. For instance, if a project aims to conserve forests, those forests may play an important filtering service that results in clean water. The team may find it easier to measure the ecosystem service by water quality indicators tied to a river conservation target, not a forest conservation target (Figure 8).

Figure 8. Example of indicator relevant for ecosystem service and a non-linked conservation target



2) Identify new indicators not covered under the conservation targets: For those ecosystem services that need but do not yet have an indicator, the team can select additional indicators. The team may find that some conservation targets provide important ecosystem services that are not critical to the conservation target's health. For example, as shown in Figure 9, bats and birds provide important pollination services for agriculture, but these services are not critical to the bats' and birds' health and would not come up during a viability assessment. In this case, the indicator might better fit tied directly to the ecosystem service or even tied to the human wellbeing target.

Figure 9. Example of indicator relevant for ecosystem service and human wellbeing target



Once the team has selected any additional indicators not covered under the conservation targets, it should revisit its conservation target indicators and determine if any could be replaced with the ecosystem service indicators, without losing the ability to adequately assess the conservation target's health. The aim here would be to keep the total number of indicators manageable.

Implications for threat ratings: When a team rates threats to conservation targets, it normally assesses the impact of the threat on the health of each conservation target affected. If the team has linked its conservation targets to human wellbeing via ecosystem services, then it could also consider the impact of the threat on the conservation target's ability to provide identified ecosystem services. Doing so might help certain actors fully understand the impact of a particular threat on human wellbeing because it can emphasize the relevance of that threat to people. For example, some people might not be so concerned about an invasive species. But, once they understand that the invasive species is negatively altering the quality or quantity of water available for human consumption, then they will care a lot more.

6. Showing Trade-offs, Feedback Loops, and Unintended Consequences in Results Chains

Defining Trade-offs, Feedback Loops, and Unintended Consequences

When trying to clarify how conservation strategies impact conservation and/or human wellbeing, project teams generally try to illustrate the expected positive impacts of their strategies.

Unfortunately, not all strategies have exclusively positive impacts for both conservation and human wellbeing targets. Therefore, in results chains, it can be useful to show the likely outcomes – both positive and negative.

Teams should consider these potential positive and negative outcomes when designing any conservation strategy. Positive and negative outcomes are not exclusive to those situations in which a team is concerned about both conservation and human wellbeing targets. Nevertheless, they are probably more commonly seen in those situations because teams are trying, to a certain degree, to fulfill goals that can conflict with one another either directly or at least in the near term.

We can think of three situations which might not be portrayed in a standard results chain that outlines how a team believes its strategy will lead to conservation impact. These situations involve trade-offs, feedback loops, and unintended consequences. We define each of these below.

Feedback loops illustrate how an event or result in a chain loops back into a system, either reinforcing and amplifying the relationship (positive feedback) or dampening the relationship (negative feedback). As an example of a positive feedback loop, a team encourages fishers to use alternative gear that reduces bycatch and improves overall fishing effort. The fishers see that they are getting the same catch for less effort, improving the quality of their work situation. As a result, they feel more vested in the alternative gear and continue to use it. They may even bring in other friends, thus amplifying the impact of the alternative gear strategy. One might see a negative feedback loop in the same situation if the fishers found that the gear was too difficult to use and did not improve overall fishing effort. They have a negative experience with the gear, and they are less likely to continue to use it. Additionally, they may even discourage other fishers from using the gear, creating a spiral of declining adoption.

An **unintended consequence** is a result that was not envisioned as part of the original action or strategy. It can be positive or negative, though it typically carries a negative connotation. A feedback loop could contain an unintended consequence, but unintended consequences are broader and could stray outside of the feedback loop. An example of an unintended consequence can be seen in a situation where a project team implements a strategy to increase income and reduce reliance on forestry products, but they see that some people are using their additional income to invest in cattle, which results in forest clearing for cattle grazing.

Finally, a **trade-off** involves a situation where one aspect (or result) is favored at the expense or partial expense of another. It implies a decision is made with an understanding of the costs and benefits. So, for example, a conservation project might advocate for the protection of a particular bird's nesting site. As a result, tourists and community members are not able to visit the nesting site. People might feel a decline in wellbeing because they cannot enjoy viewing the bird (a cultural ecosystem service). Despite this short term cost, if the nesting site is one of the last remaining sites for this species, then the team must protect it for conservation purposes and in the long run for the benefit of the people.

Implications for Displaying Complex Interactions between Biodiversity Conservation and Human Wellbeing

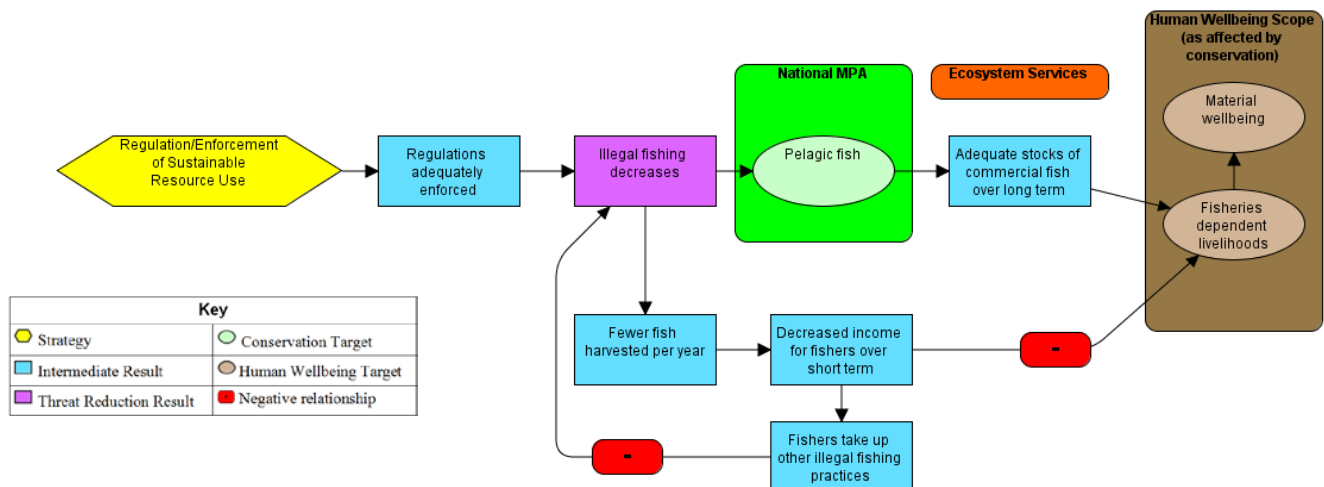
In general, project teams should consider potential consequences, trade-offs, and feedback loops when planning and monitoring their projects. Although the distinctions among these three situations are conceptually important and can help teams brainstorm potential scenarios, it is less important to correctly classify what situation a team is addressing in its project. The more critical issue is to ensure that the team adequately captures the likely scenarios in its results chains. As a point of guidance, a team should only include these scenarios when it feels that there is a high probability of seeing trade-offs, feedback loops, or unintended consequences and that the team should be monitoring them to know if they are influencing the project's results.

Scenario: Legal Enforcement of Fishing Restrictions

When a strategy involves limiting access to specific resources, then human wellbeing may be negatively affected (e.g., decreased income, loss of social cohesion, reduced access to food sources) for some community members. If not addressed, the associated short-term transition costs can potentially jeopardize the intervention and/or reduce its credibility. In order to help teams understand these potential consequences and their implications, it is useful to illustrate these when laying out assumptions in a results chain. The team should consider these consequences and think of options to address them. Such options may include simply involving the resource users in the planning process so they understand the potential benefits, see the change as an investment cost and plan for them. Another option could include planning a new strategy or activity to help offset or limit the impact of these losses.

The results chain in Figure 10 shows a situation where legal enforcement reduces illegal fishing and provides longer term access to harvested stocks, allowing future users to derive a sustained income. It also shows how the strategy could negatively affect livelihoods over the short-term (temporal trade-off) and cause fishers to engage in other illegal practices (an unintended negative feedback loop).

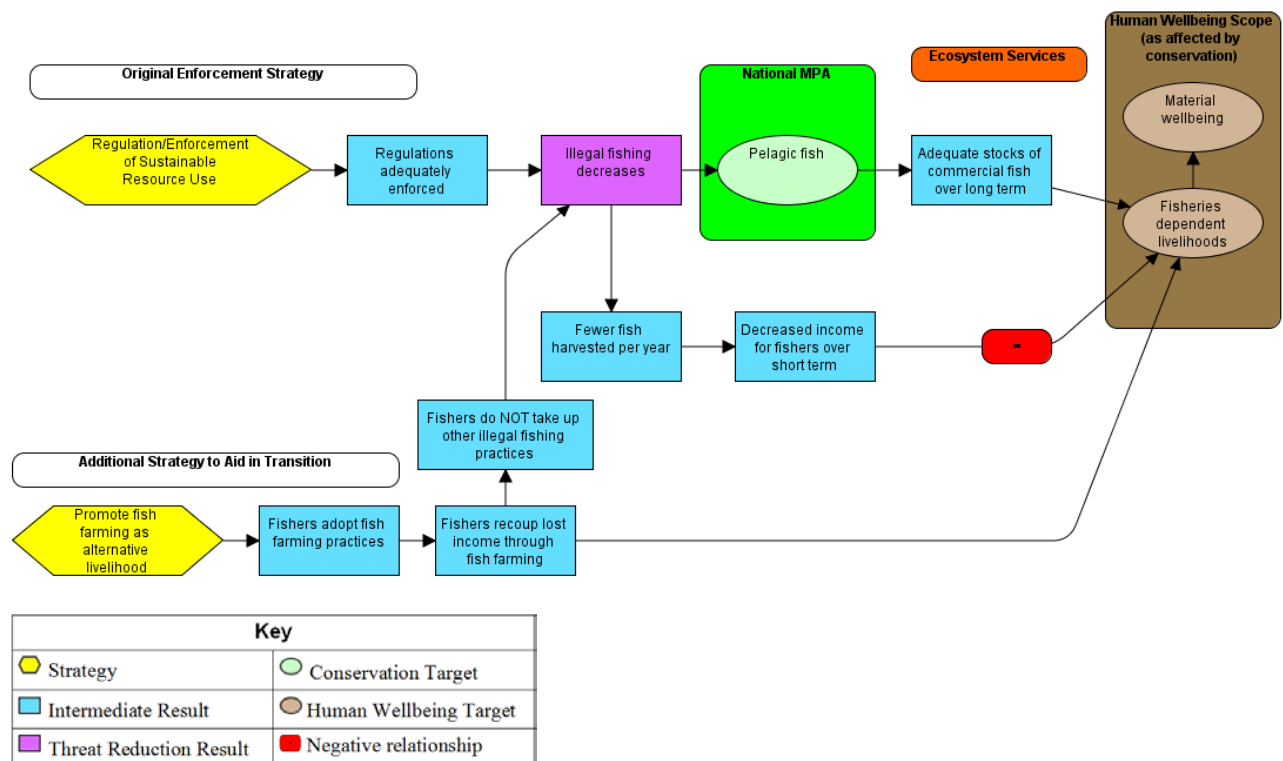
Figure 10: Law Enforcement Strategy with No Supporting Strategy



Note: If using Miradi, one can create a red text box and hover it over the line that connects the 2 results where there is a negative relationship

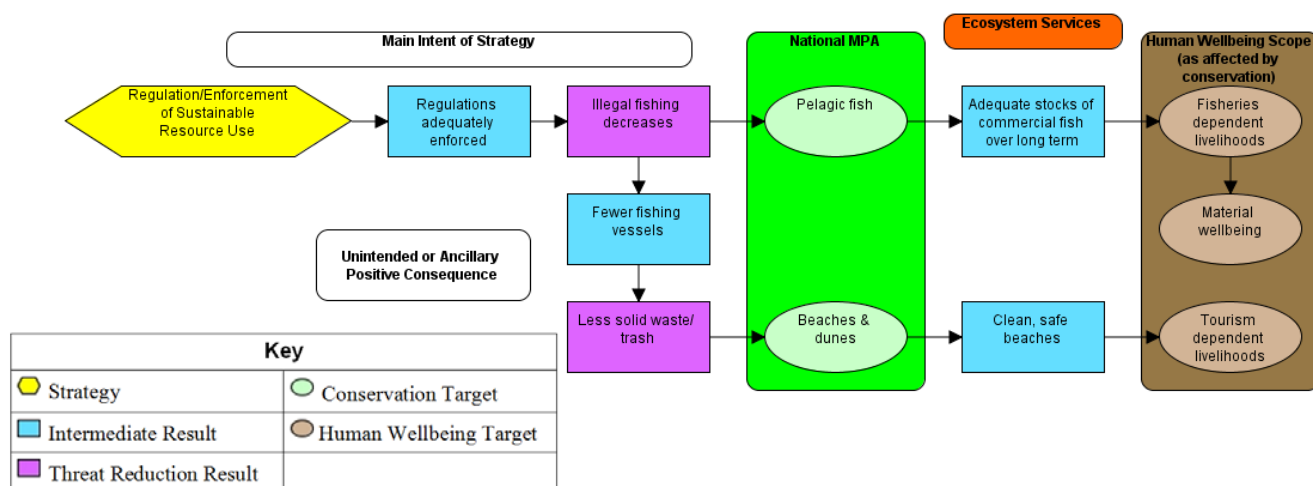
In Figure 11, the results chain shows how an additional strategy may help address the transition costs associated with the temporal trade-off to enable future generations to benefit from using the resource. In this case the new strategy is promoting fish farming as an alternative livelihood to offset the short-term loss from restrictions on illegal fishing.

Figure 11: Additional Strategy to Aid in Transition Period



Keep in mind that feedback loops and unintended consequences can also be positive, as shown in Figure 12. However, we do not recommend any different annotation to show those relationships, as the general intent of results chains is to illustrate the expected (and therefore positive) results from a strategy. Again, the general guidance is to only show these relationships when there is a high likelihood they will occur, and the impact will be significant. Obviously, this is subjective and will require some judgment calls on the part of the team.

Figure 12. Example of an Unintended or Ancillary Positive Consequence



Additional Examples

Here are a few examples to provide teams with more ideas of how feedback loops, unintended consequences, and trade-offs can be shown in different situations. Recognizing potential negative or unexpected outcomes can help teams develop stronger projects, but **it is important to only show those situations with a high probability of occurring**. Teams risk losing the communications power of results chains and conceptual models when they try to make them overly comprehensive.

Figure 13 is based on a real-world example where a team was trying to improve harvesting and management practices of Brazil nut forests. As the team started laying out their chain, they realized that it was quite possible that higher income would encourage some harvesters to buy cattle – a typical investment strategy among Latin American rural populations. If that unintended consequence were to happen, there would be more conversion of forest, not less. By showing this in a results chain, the team could be aware of that possibility and could be monitoring closely to see which path better reflected what really happened.

Figure 13. Example of an unintended negative consequence in a tropical forestry situation

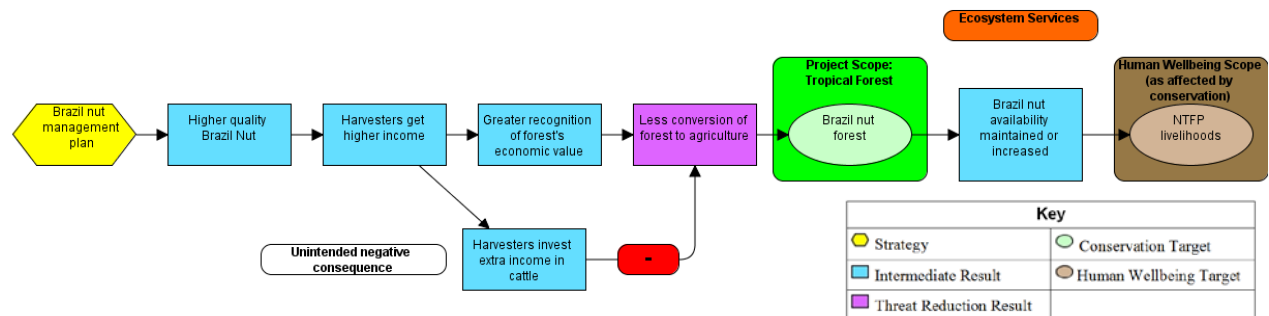


Figure 14 provides another example of an unintended negative consequence. In this case, the team anticipated that enforcement of anti-poaching laws would decrease poaching for tusks and horns, but they also recognized that poachers could simply start hunting bushmeat to continue to earn an income. In terms of showing this in a results chain, they could have illustrated that potential negative consequence and left it at that. In this case, however, they added a strategy to counteract the potential that hunters would switch species and decided to show that in the results chain.

Figure 14. Example of an unintended negative consequence in a species conservation situation

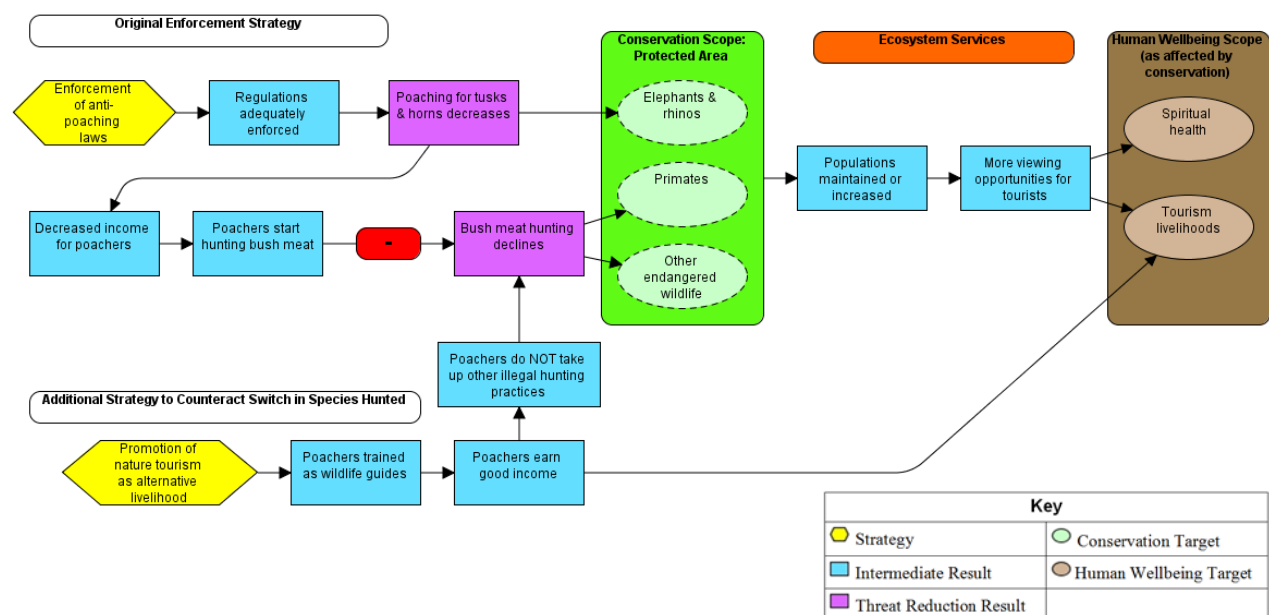
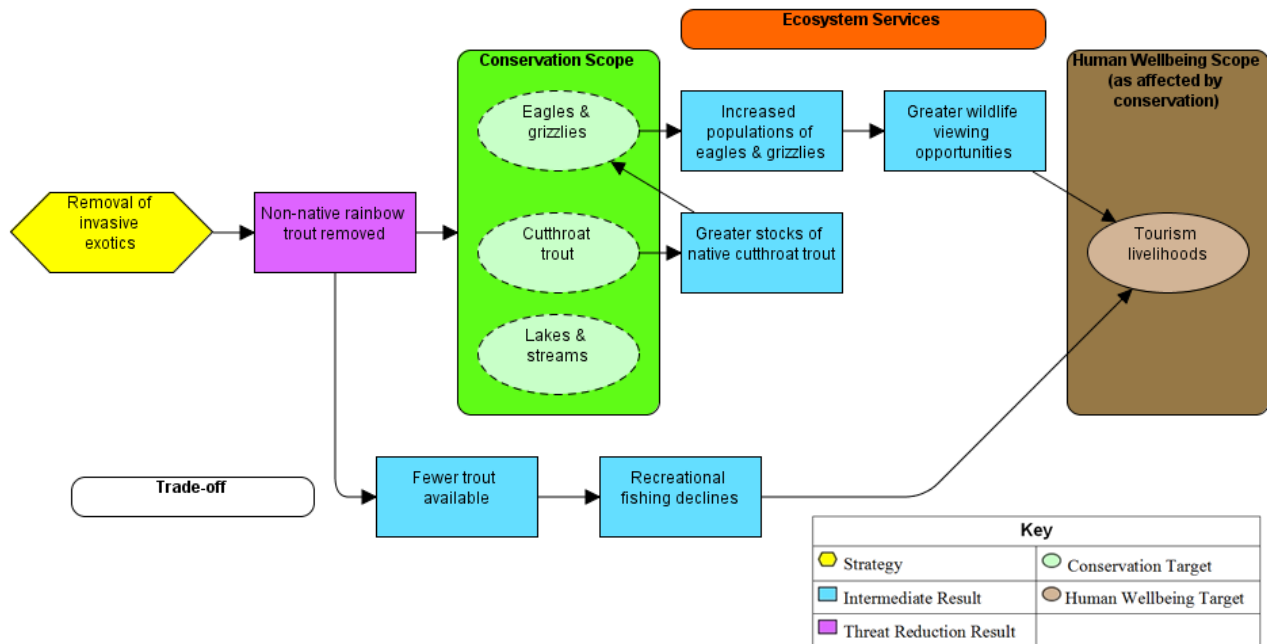


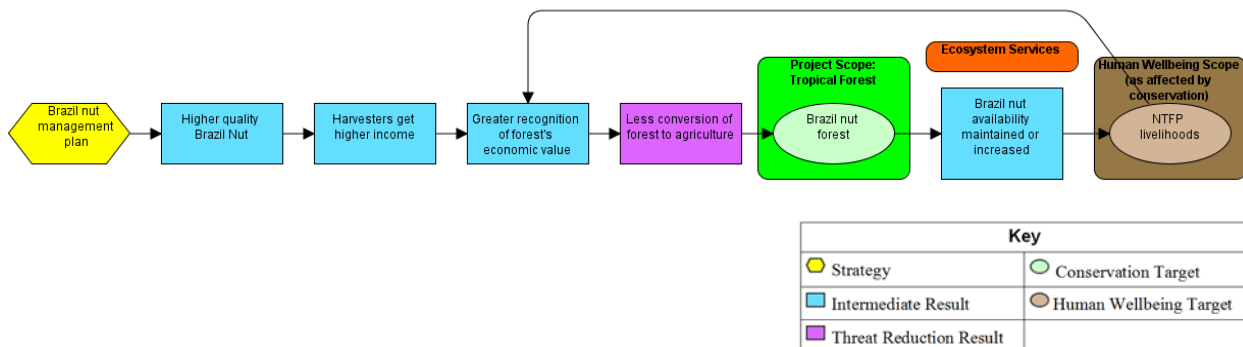
Figure 15 shows an example of a strategy to remove non-native trout that had been introduced to lakes and streams decades ago in order to attract fishers to the region and support the local tourism economy. By removing these non-native trout, the team expects an economic tradeoff due to decreased recreational fishing opportunities. At the same time, there could be a positive impact on tourism livelihoods because the native cutthroat trout is an important source of food for eagles, grizzly bears, and other wildlife that tourists are interested in seeing.

Figure 15. Example of a tradeoff in a mountain freshwater ecosystem



Finally, some teams may want to show that contributing to human wellbeing targets can also positively or negatively influence the ability to achieve conservation results. This is possible and technically correct, but we re-emphasize the importance of only showing the most important relationships and those that have a high probability of occurring. The power of results chains and conceptual models lies in their ability to communicate simply and clearly what a team is trying to influence and how it intends to do so. If, with these considerations in mind, a team still feels compelled to show those relationships, Figure 16 provides an example of how to do so.

Figure 16. Example of how human wellbeing could feed back and contribute to conservation



7. Concluding Remarks

The Open Standards were designed for teams that are working with conservation as their primary aim. This guidance document was developed with that audience in mind. The guidance attempts to provide a clear structure and set of recommendations for how conservation teams that want to explicitly consider human wellbeing can do so within the overall context of the Open Standards for the Practice of Conservation.

The intent of this document is not to advocate for the use of human wellbeing targets in conservation projects. Whether to include human wellbeing is a decision a team will have to consider in light of its context and those involved in the project. If a team determines that it should address human wellbeing, then it is important to read and apply this guidance.

Practicing the principles of adaptive management, we see this document as a first draft that should be tested in the field and refined and improved over time. To that end, if you have any questions or suggestions, please direct them to: info@conservationmeasures.org.