

TNC FRESHWATER COMMUNITY-BASED CONSERVATION PROJECT INVENTORY

An analysis of 32 projects

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The Nature Conservancy



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Suggested citation for this report:

Kang, S., Simmons, E., and Aldous, A. 2020. *TNC Freshwater Community-Based Conservation Project Inventory: An Analysis of 32 Projects*. Arlington, VA: The Nature Conservancy. Available at: <https://bit.ly/fCBCInventory>



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ACKNOWLEDGEMENTS

We would like to wholeheartedly thank the over 50 TNC staff who provided input to and support for this effort, from identifying projects, making connections, to setting aside time to chat with the project team, to completing surveys. And of course, for all the great conservation work you do every day. This work would not have been possible without the active participation and support of these dedicated staff. Thank you!

INTRODUCTION

The Nature Conservancy (TNC) has long engaged with indigenous peoples and local communities (IPLC) toward supporting the continued protection of ecosystems and biota. More recently, TNC has developed fundamental frameworks and guidance inclusive of both terrestrial and freshwater ecosystems in order to better support conservation practitioners engaged in community-based conservation.

In 2018, TNC embarked on a program focused specifically on *freshwater* community-based conservation (fCBC). Through this program, TNC is strengthening its support for existing and emerging fCBC efforts. Beyond direct support for fCBC activities, TNC also seeks to more broadly raise awareness of the unique significance of community-based approaches to freshwater biodiversity conservation. To do so, TNC is supporting several work streams toward documenting prior experiences with fCBC and demonstrating future potential of community-based approaches, one of which is to identify, catalog, and learn about TNC's recent and current fCBC projects around the world. The objectives of creating this inventory are to:

- A. Understand **where and how** TNC works with IPLC to advance freshwater biodiversity conservation¹;
- B. **Recognize** existing on-the-ground work on freshwater that is sometimes overlooked (or categorized as terrestrial/land projects);
- C. Act as an initial step for **knowledge exchange & mutual learning** opportunities across TNC's business units;
- D. Serve as a **starting point** for future fCBC work.

¹ More detailed questions include:

- What species and ecosystems are being targeted for restoration or protection?
- What stressors/threats to freshwater resources are present?
- To what level(s) are IPLC involved in decision making?
- What progress has been made to date? What is working and what is not? What are the biggest challenges?
- Are the activities being monitored and reported? What do those results say about the conservation and human well-being activities?

Box 1. Definitions

Community-based conservation (CBC): Conservation that strengthens the voice, choice, and action of indigenous peoples and local communities to shape and manage land and waters in ways that improves peoples' lives and drives biodiversity outcomes. Freshwater CBC projects emphasize freshwater resources and their management.

Indigenous peoples and local communities (IPLC): Consistent with the definition adopted by TNC's IPLC team. A "community" usually refers to a well-defined group that self-identifies as a people and/or that has a shared identity, culture and/or values. Communities contain multiple diverse actors and interests that interact through institutions and change through time. The term "indigenous and local communities" is used to refer to communities that possess a close and profound relationship with their natural landscapes (territory, area, or habitat) which they depend on for cultural, religious, health, and economic needs. This includes the original inhabitants of a place and/or migrants who have settled in a place who have the aforementioned relationship with the natural landscape. Note that IPLC are usually original inhabitants of a place and thus consider themselves distinct from other sectors of the societies now prevailing in the territories, which they [indigenous peoples] originally occupied prior to colonization. Indigenous peoples have collective rights recognized under international law.

Freshwater species: Species and/or natural communities are those that are dependent on freshwater ecosystems (rivers, lakes, wetlands, springs, aquifers, etc.) for all or part of their life history stages. This can include riparian and floodplain species and habitats which depend on freshwater ecosystems for processes such as seed dispersal; but does not include all species that simply use the water in a freshwater ecosystem.

Freshwater community-based conservation (fCBC): TNC defines fCBC projects to include two components: (1) a strong connection to freshwater biodiversity, through focusing on the protection and/or conservation of freshwater species and/or ecosystems and the services they provide; (2) a focus on indigenous peoples and local communities (IPLC) as users and beneficiaries of the freshwater resources. Freshwater conservation goals are pursued by fCBC strategies that emphasize the role of IPLC in decision-making about natural resources. fCBC programs are often strongly linked to other non-fCBC strategies (e.g., hydropower by design, sustainable agriculture), but because communities are often distributed along water bodies throughout river basins of interest, the community can often be an important entry point for system change. fCBC includes a spectrum of approaches that range from the formalized devolution of rights to communities, to practices that emphasize the co-management of resources. fCBC strategies involve many actors, including community members, government officials, and non-profit organizations, with decisions and feedbacks often occurring across multiple scales.

For additional information, please reference the following documents:

- **What is freshwater CBC?**
<https://tnc.box.com/s/i6tbtf8xs6mh5ikx19odmro00ifl37dm>
The goals of this document are to (a) define freshwater community-based conservation (fCBC) and (b) provide some examples of strategies that are captured within it.
- **Community-Based Management of Freshwater Resources: A Practitioners' Guide to Applying TNC's Voice, Choice, and Action Framework.** Available in [English](#), [French](#), [Portuguese](#), and [Spanish](#).
This guide aims to advance the understanding of how communities can sustainably manage freshwater resources by applying The Nature Conservancy's Voice, Choice, and Action (VCA) framework. The original framework focused more on terrestrial resources but has been adapted here to address the unique characteristics of freshwater resources.

METHODS

Scope: The process of creating the inventory required several steps and approaches. It was first necessary to establish a set of principles that would identify and confirm which TNC projects were in fact fCBC. To be included in the inventory, project would thus have to meet all the following criteria, based on the definitions:

- Explicit freshwater conservation objectives (not just as co-benefits)
- Direct involvement of IPLC
- IPLC as users or managers of freshwater resources
- IPLC as direct beneficiaries of freshwater conservation

Data collection: fCBC projects were then identified, and information about them collected, through:

- Compiling information from existing data sources, including T-roots survey², fact sheets, strategy documents, etc. (February – March 2019)
- Conducting targeted and *ad hoc* outreach through key TNC staff
- Deciding on inclusion of potential fCBC projects through short interview calls with project staff
- Collecting detailed data for confirmed projects through a survey questionnaire³ (June – October 2019)

Analysis: Analyses of survey data were conducted mostly using summary methods (descriptive statistics of counts/frequencies) in Excel and R. Open-ended responses were reviewed and categorized by common themes. All results included in this report are meant to show aggregated information only to demonstrate patterns and trends, and should not be used to draw conclusions about individual projects or specific regions.

RESULTS

Through review of existing documents and targeted outreach, we identified a total of 59 TNC projects across major TNC regions (Africa, Asia Pacific, Latin America, and North America) that met our inclusion criteria to be considered as potential freshwater community-based conservation, as of November 2019. After our initial round of short scoping interviews, we distributed the survey questionnaire to 50 place-based projects based on the status and types of projects (very early stage projects and policy support projects were excluded in this inventory). In total, we received data from 32 of these for subsequent analysis, for a response rate of 64%.

Overall, survey results show that TNC, mostly acting as an advisor and/or facilitator, engages or works in partnership with at least 147 different IPLC in 12 countries, across 5 continents. More than 11,000 people from these communities are directly involved in fCBC through our engagements. A wide variety of freshwater biodiversity and many of their major threats are represented by these 32 projects. Dominant freshwater ecosystems and species taxa that occur within project area are rivers, riparian ecosystems, and fish. Multiple uses of freshwater resources are present within project areas.

² Tracing TNC's Roots in Indigenous- and Community-led Conservation (T-Roots). 2016. The Nature Conservancy, Arlington, VA. https://connect.tnc.org/sites/lands/indigenous/Documents/TROOTS_Report_Final_Clean.pdf

³ Survey questionnaire (in pdf) can be found here: <https://tnc.box.com/s/jwmlqiibe8m2mwxs0q4h99ujhsczq8d>

While there is a minor variation in the type of common uses in developing and developed countries⁴, domestic water supply is the most important freshwater resource use type by IPLC. Most IPLC involved in these projects hold use rights to freshwater resources, but many fewer have control rights⁵, suggesting important implications for communities' water resource security and the applicability of a CBC approach. Of the human well-being objectives set up by projects, both security (water security, food security, and access to other natural resources) and empowerment (training, strengthening community organization, and improving ability to self-organize and negotiate) are frequently mentioned. fCBC projects at TNC focus on strategies around capacity building and changing natural resources management practices, including strengthening working relationships between actors, building partnerships with existing local organizations or networks, technical training, introducing improved practices for existing production activities, restoring cultural management practices, etc. The biggest challenges for TNC to work with IPLC include trust and relationship, time, and resources (both funding and local staff capacity).

The following section highlights some of the major findings across the 4 categories:

- I. General information about the projects
- II. Freshwater context
- III. Indigenous Peoples and Local Communities components
- IV. Project implementation & impacts

A PowerPoint version of the result presentation can be found [here](#).

⁴ Classification of countries followed the United Nation's World Economic Situation and Prospects 2019 report: https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/WESP2019_BOOK-ANNEX-en.pdf

⁵ It also appears that survey respondents tend to be more certain about use rights than control rights.

I. General Information

Geographic distribution and project status

Figure 1 depicts the locations and status of the 32 place-based fCBC projects included in this inventory, as of November 2019. Breaking down by TNC regions, 11 are in the Latin America Region, 10 in North America Region, 7 in Asia Pacific Region, and 4 in Africa Region. Fifteen of the projects are located in developed economies (the US, Australia, and New Zealand), and 17 in developing ones.

A majority of surveyed projects (62.5%) self-identify as in-process (green dots in Figure 1), with 25% being in design or planning phase (orange dots), and 12.5% concluded (blue dots). Most of the concluded projects reference reasons related to funding (lack of funding or only initial funding for pilots). One project cites that, while funding was still a factor for TNC's discontinuation, the indigenous community continues to manage the project since TNC's exit.

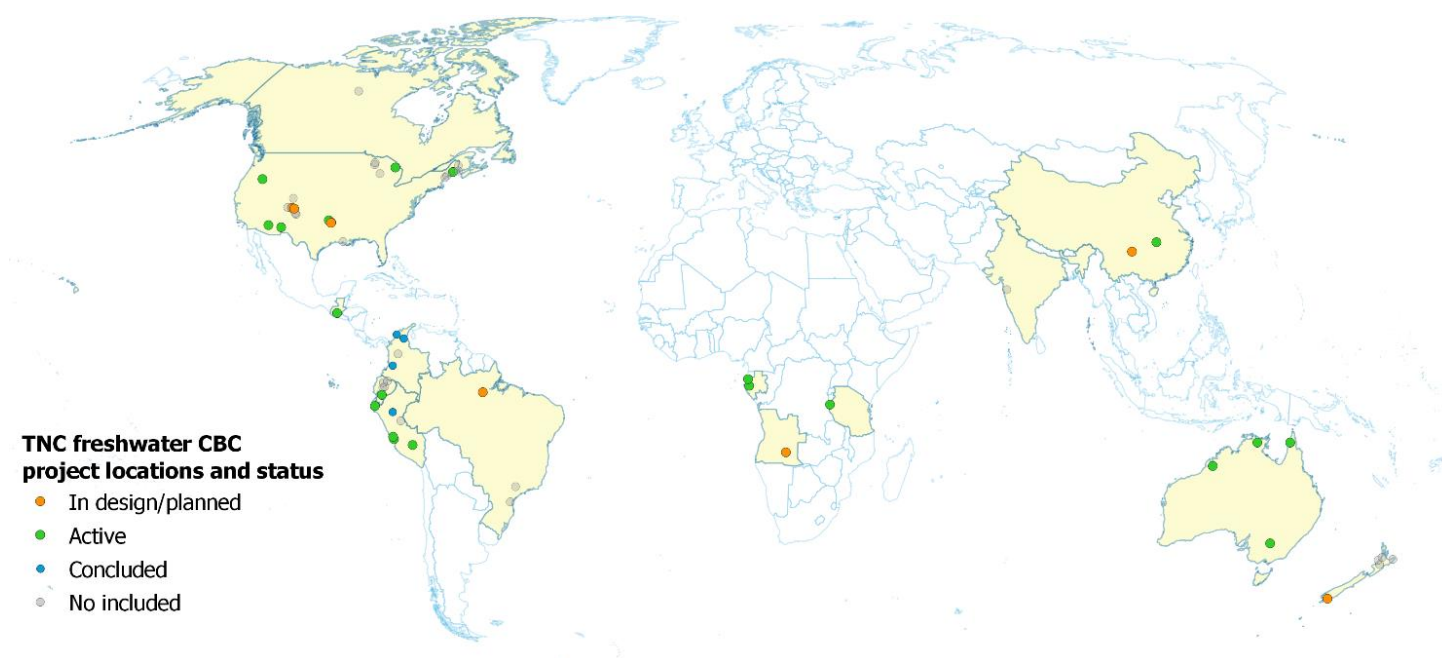


Figure 1: Map of fCBC project locations and status (for 32 projects) as of November 2019. Dots in gray are projects identified as fCBC but not included in the inventory database.

How projects started

Multiple reasons exist for how and why the fCBC projects started. We identified five categories based on who was the driving force behind their creation. As seen in **Figure 2**, 50% of the projects were initiated by TNC as part of TNC's prioritization as well as co-location of IPLC. The results also show how in developed countries, the communities tend to be more proactive and are driving the projects.

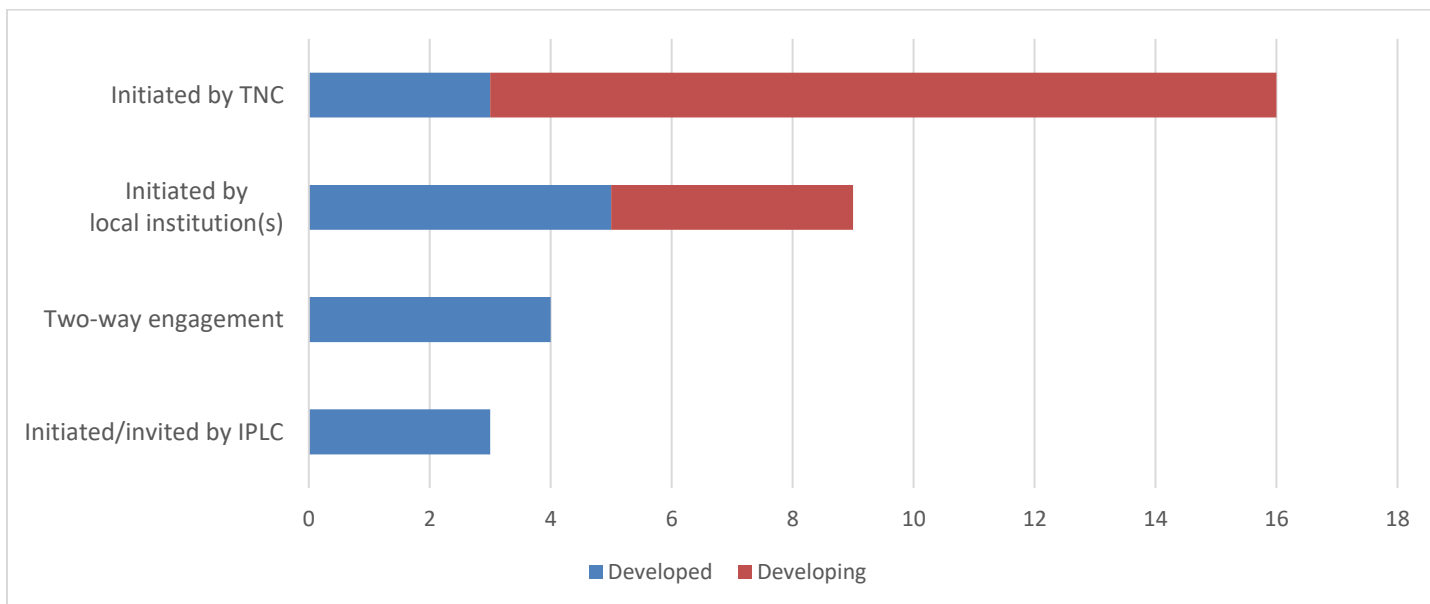


Figure 2: Chart showing fCBC projects by how they started and by whether they're within a developed or developing country. Two-way engagement refers projects created as a result of both invitation by the IPLC and TNC's conservation prioritization.

TNC's role(s)

On average, TNC plays about 4 different roles in the projects. Advisor has been most common role of TNC (90.6%), followed by facilitator or mediator (72%). Breaking down economic situations, TNC appears to be working more as one of the partners on projects within developed economies, whereas in the developing world, TNC focuses more on managing and implementing the on-the-ground work (Figure 3). This variation between developed and developing countries is also largely in alignment with how these projects started, as depicted in Figure 2, and partially reflects an ongoing culture shift in how TNC approaches conservation as an organization.

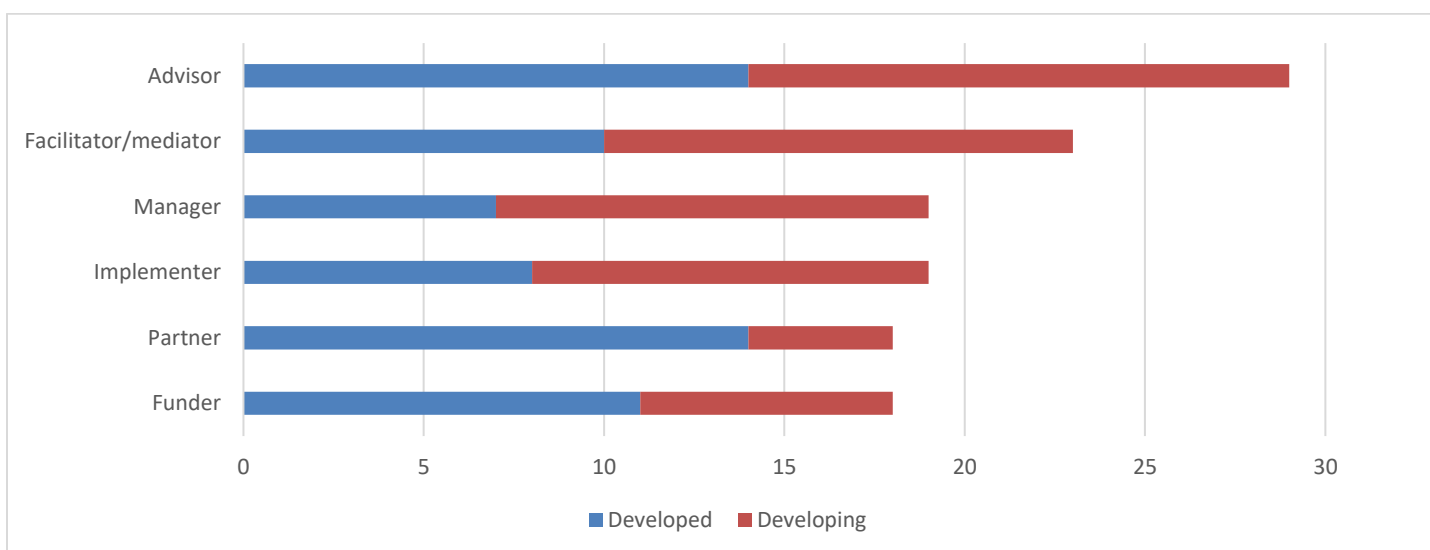


Figure 3: Role(s) of TNC in fCBC projects surveyed.

When projects started, and the interval between IPLC engagement and on-the-ground implementation

By asking for specific dates about when the projects started, the survey reveals that after initial engagement is made with the IPLC, it takes an average of 2 years for a fCBC project to start implementing conservation activities. **Figure 4** below shows this interval between IPLC engagement and on-the-ground implementation across all the projects by region. We hypothesize that interval partially represents the time needed on average to (1) build relationship and trust with the IPLC we aim to work with, (2) understand the stakeholder landscape, power dynamics, etc. within the project area before getting into action, and/or (3) to sufficiently involve IPLC in the scoping and design/planning of these projects.

While the sample size is limited, the aggregation of number of projects since 2015 is in accordance with anecdotal notes about TNC's increasing awareness of the importance of partnering with the IPLC to deliver on-the-ground impacts over the past 5 years, and the ongoing organizational culture change in making space for more IPLC leadership and traditional ways of knowing in addition to Western conservation science.

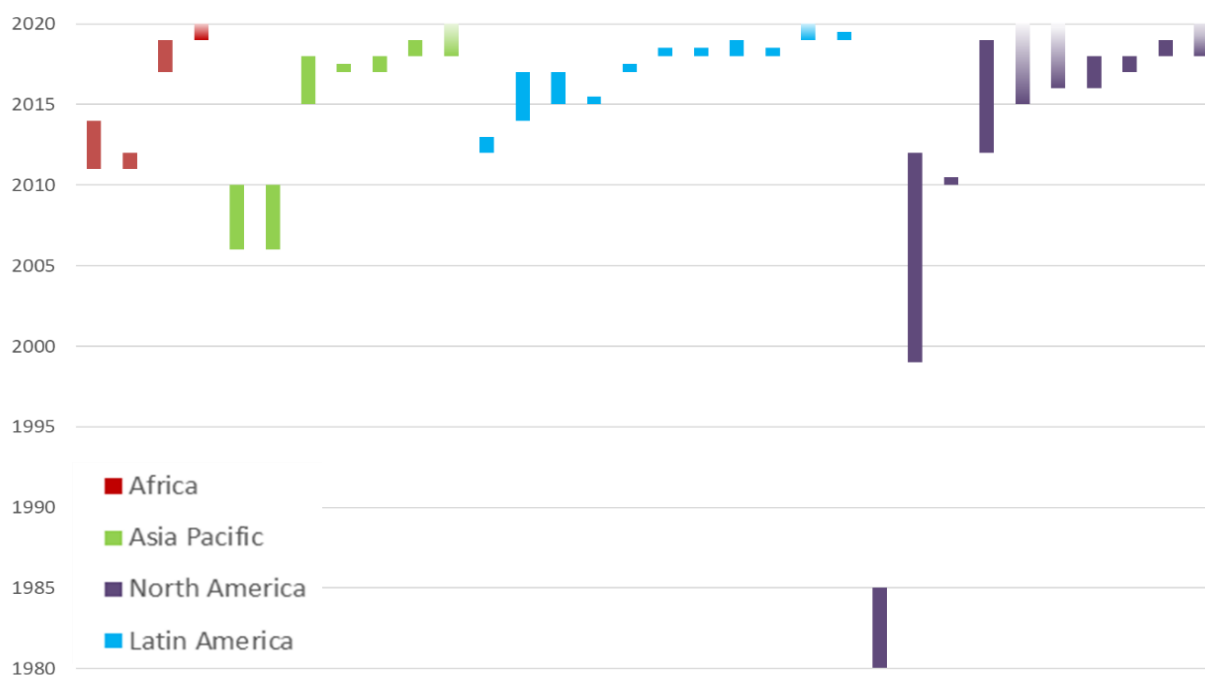


Figure 4: Interval between IPLC engagement and on-the-ground implementation. The different colors are representative of the regions. The bottom of each bar is when the engagement with the community first began, and the top of the bars is when conservation activities actually started. A gradient is present at the top of the bar if that project has not yet started implementing. Y-axis: year.

II. Freshwater Context

By definition, fCBC projects seek to advance the conservation and/or sustainable use of freshwater species, ecosystems and resource use as their explicit objectives, instead of as ancillary benefits from terrestrial- or marine/coastal-focused work. Therefore, the following section attempts to better understand the specific freshwater context of these fCBC projects, including: the types of freshwater ecosystems, resources, and/or species present and targeted by the projects, how IPLC involved in the projects are using (to a less extent, managing) freshwater resources, and major direct threats to freshwater resources.

Freshwater resources within project area

Multiple freshwater ecosystems and resource types are present within the project areas. Rivers and/or streams are the most frequently targeted freshwater ecosystems for conservation or restoration (Figure 5).

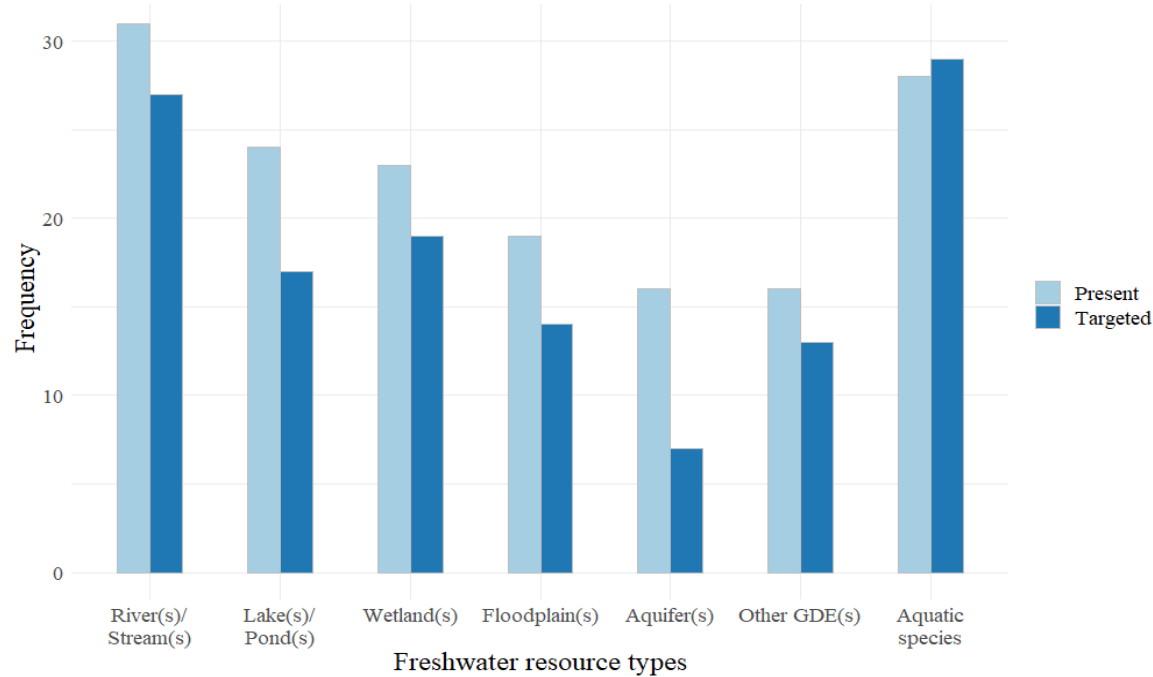


Figure 5: Freshwater resources present and targeted within the project area.

Zooming in to freshwater-dependent species, a variety of flora and fauna are targeted for protection, or sustainable use by the fCBC projects, as shown in Figure 6. 78% of projects are targeting fish, making it most common taxonomic group, while only 22% of projects target reptiles and amphibians. Riparian ecosystems in general, as well as specific plants, are also commonly referenced in projects’ restoration or conservation objectives.

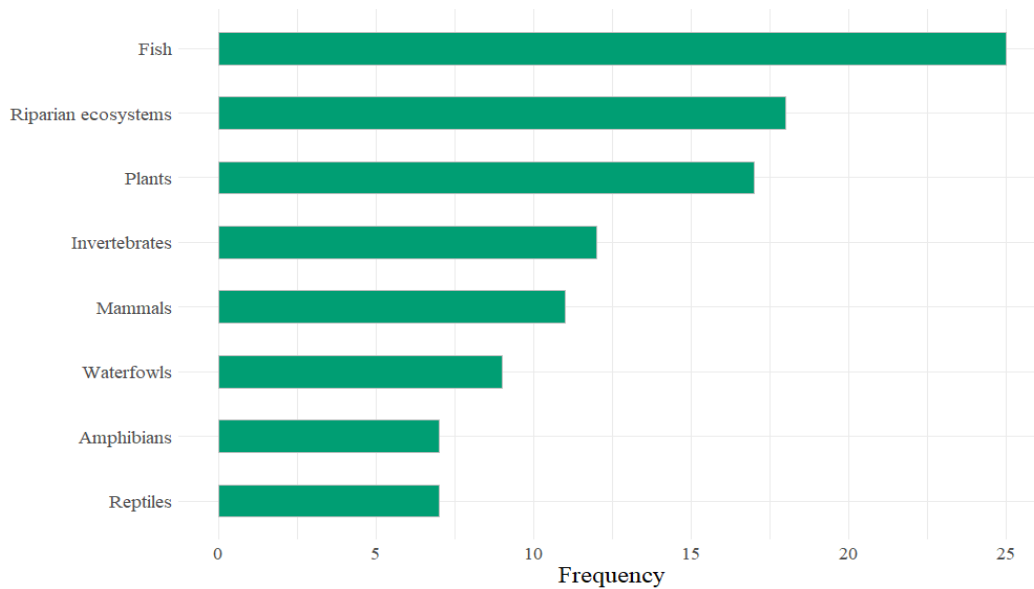


Figure 6: Freshwater-dependent species being targeted by fCBC projects for conservation or sustainable use.

In addition to freshwater biodiversity (ecosystem and/or species) conservation goals, a number of fCBC projects also have a focus on freshwater ecosystem services (e.g., water purification, flood attenuation, aquifer recharge): 15 projects have water quality objectives, and 12 reported water quantity objectives.

How IPLC use freshwater resources

Freshwater resources are essential and can be used in a lot of different ways – on average, water in the project area is used by IPLC in five different ways. Domestic water supply (including drinking water and cooking) is the most common use (90.6%). Inland fisheries is identified by 62.5% of the projects. Projects in developed countries focused slightly more on recreation, cultural/spiritual, and tourism uses, and projects in developing countries identified slightly more livelihood related uses (see **Figure 7** below).

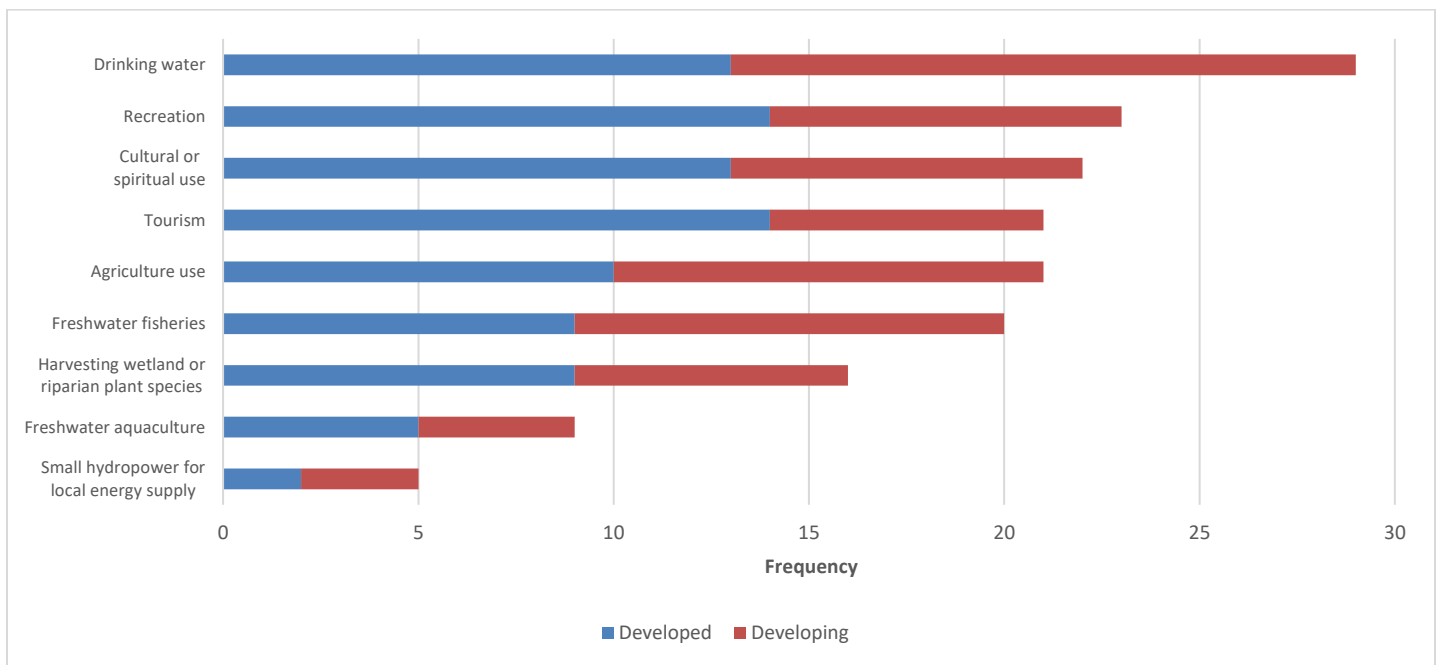


Figure 7: How freshwater resources in the project area are being used by IPLC. Drinking water also includes cooking and brewing, and agricultural use includes irrigation and feeding of livestock. Note that most projects that checked recreation also selected tourism.

Besides freshwater resources use, a few projects explained how IPLC within the project areas were managing their freshwater resources prior to the project with TNC. Examples include having a self-organizing irrigation committee, joint management with state agencies where the treaties occur (in the North American context), and establishing indigenous ranger programs. However, more than 75% of the projects identify the lack of proper management and/or lack of coordination across the landscape and stakeholders as major challenges with IPLC freshwater resource management prior to TNC’s involvement (and hence partnering with TNC to change the situation).

Major threats to freshwater resources

The major threats to freshwater resources are listed in **Figure 8 and 9**. The most frequently identified threat to freshwater resources by projects is pollution, followed by over-extraction of water (surface and/or groundwater). Results also reveal that overfishing is perceived as a bigger issue for projects in developing countries, while over-extraction of water was more of an issue for projects in developed countries.

The major sources of anthropogenic stress to freshwater resources can be both internal to the IPLC (by the communities themselves, such as unsustainable agricultural practices, internal conflicts on resource allocation and use, or weak enforcement of local rules) and external (seasonal migrant workers, utilities, commercial development, multinational businesses, etc.). The three most common direct anthropogenic drivers that projects identify are agriculture, infrastructure, and mining, as **Figure 9** illustrates. Other larger scale, more indirect stressors include pressure from growing population within the watershed, lack of planning, and incompatible management. Natural climate variability as well as climate change are also relatively commonly referenced, especially regarding threats to local hydrologic regime.

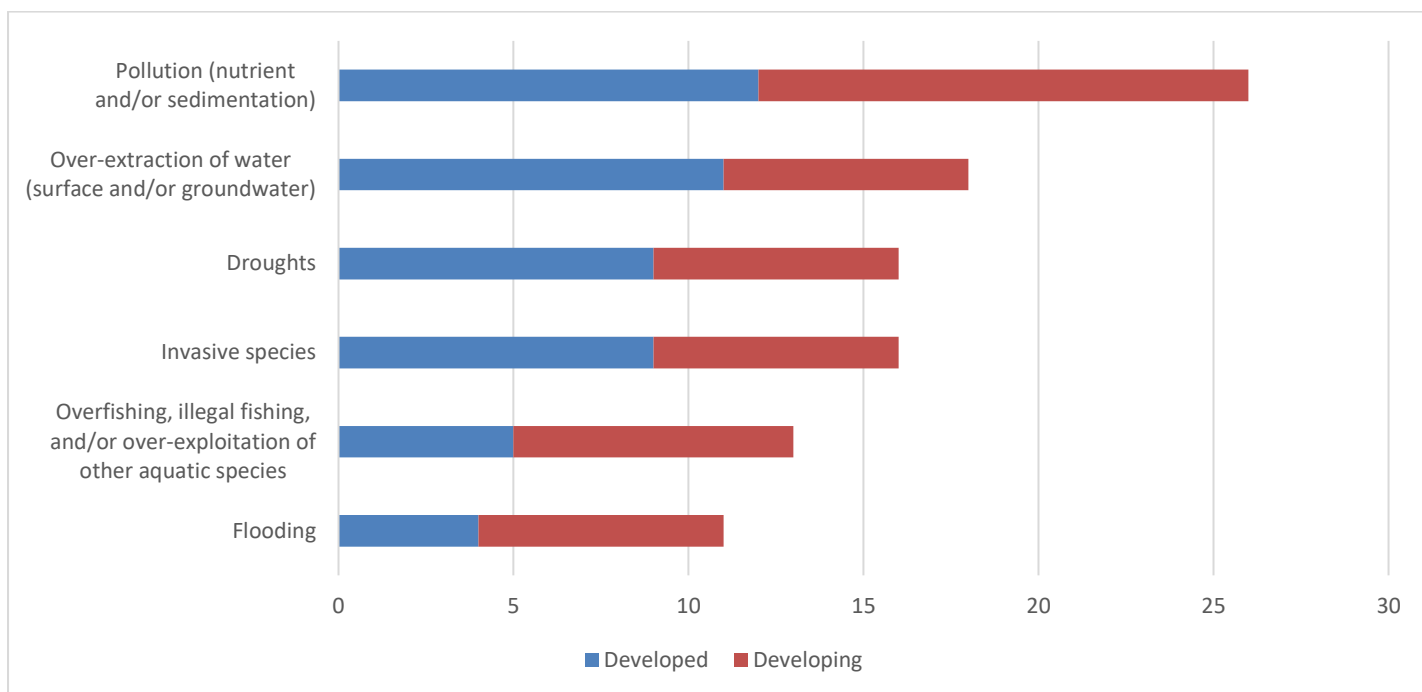


Figure 8: Major threats to freshwater resources within fCBC project areas (n=32).

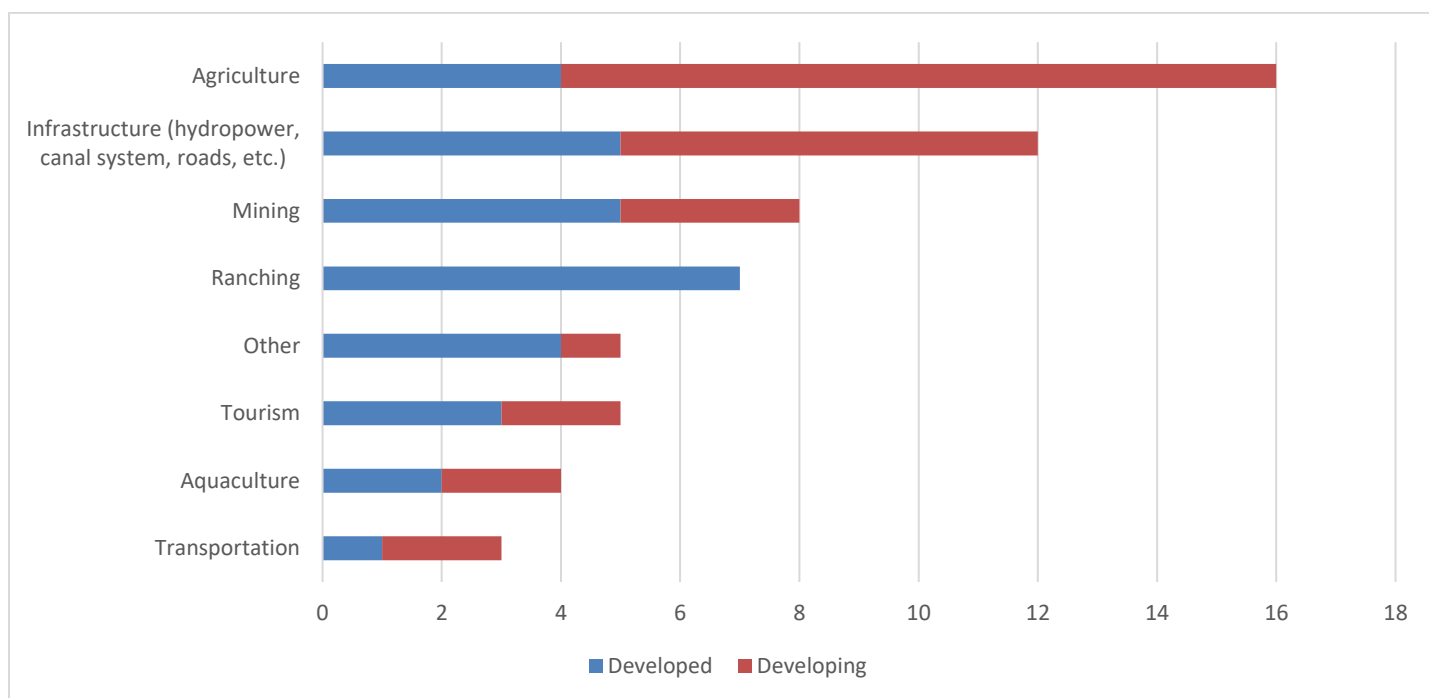


Figure 9: Major sources of anthropogenic stress to freshwater resources within project area (n=32). 'Other' includes wildfire, forestry management (logging practices), and incompatible resource management.

Threats to freshwater resources within fCBC project areas affect the five key attributes of freshwater ecosystem integrity⁶, as shown in **Figure 10**.

⁶ Baron, J. S., N. L. Poff, P. L. Angermeier, C. N. Dahm, P. H. Gleick, J. Hairston, Nelson G., R. B. Jackson, C. A. Johnston, B. D. Richter, and A. D. Steinman. 2002. Meeting ecological and societal needs for freshwater. *Ecological Applications* 12:1247-1260.

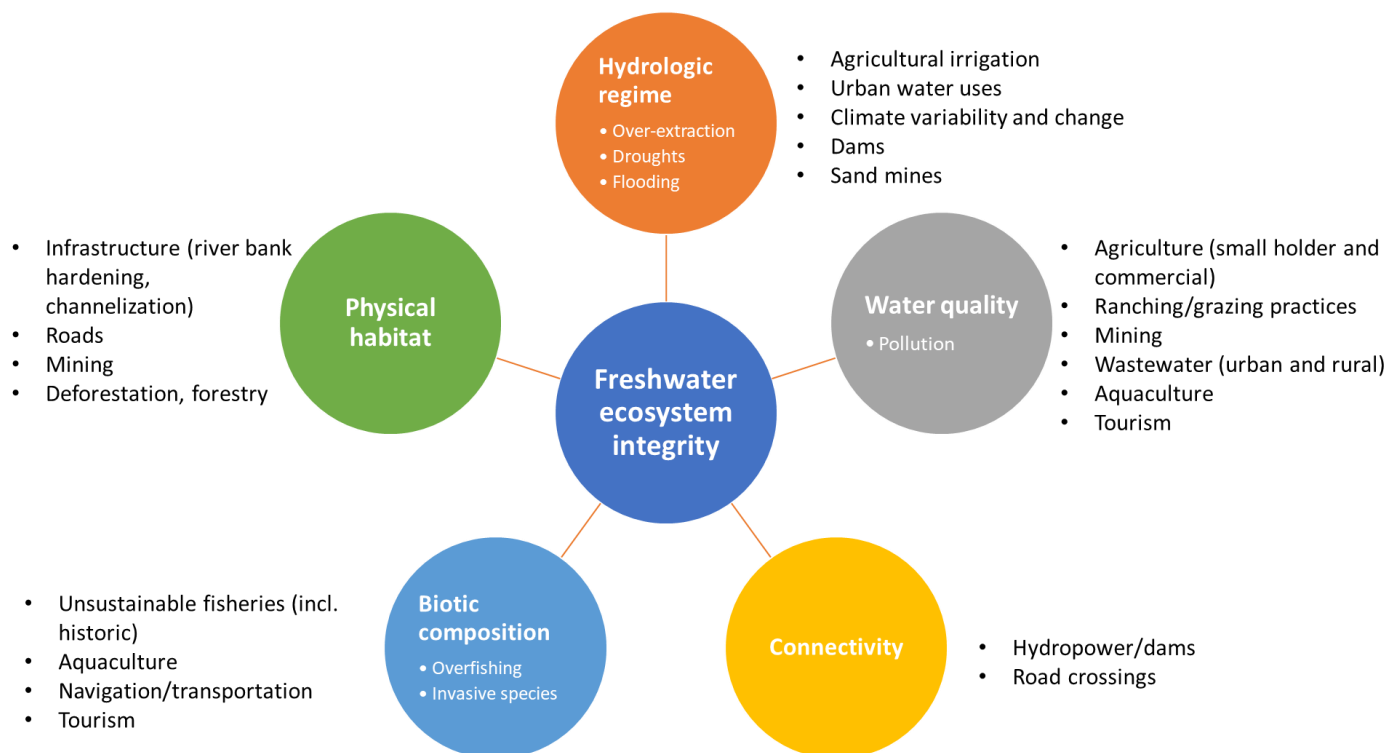


Figure 10: Major threats identified by projects affect key attributes of freshwater ecosystem integrity: hydrologic regime, water quality, connectivity, biotic composition, physical habitat.

III. Indigenous Peoples and Local Communities Context

From the working definition of fCBC, IPLC's direct involvement in the projects – an emphasis on their roles in decision-making – is another key feature that distinguishes fCBC from other freshwater conservation programs at TNC. The following section aims to describe the IPLC context of these 32 projects, where TNC is working with at least 147 different IPLC, including: rights to freshwater resources, awareness and perception on Free, Prior, and Informed Consent (FPIC) process, IPLC's levels of involvement in the projects at different stages, human well-being objectives of these fCBC projects and intended direct beneficiaries, and numbers of people directly involved in fCBC to date.

IPLC rights to freshwater resources

One of the challenges with freshwater resources conservation and management is that rights to freshwater resources are not always clearly defined. In this inventory we made an attempt to better understand, from TNC staff's perspective, whether the IPLC they are working with hold certain rights to their resources. This exercise is only a first cut at getting a snapshot of how project staff are thinking and operating in the space of rights, and how some of the patterns help clarify hypotheses around fCBC and rights.

To be consistent with rights-related discussions and literature in other ecosystems, we bundle the following six established property rights⁷ into use and control rights⁸, and assume responses are about *de jure* (legally recognized) rights. Due to data limitations, the following discussions are only focusing on four of them – access, extraction/withdrawal, management, exclusion (Figure 11).

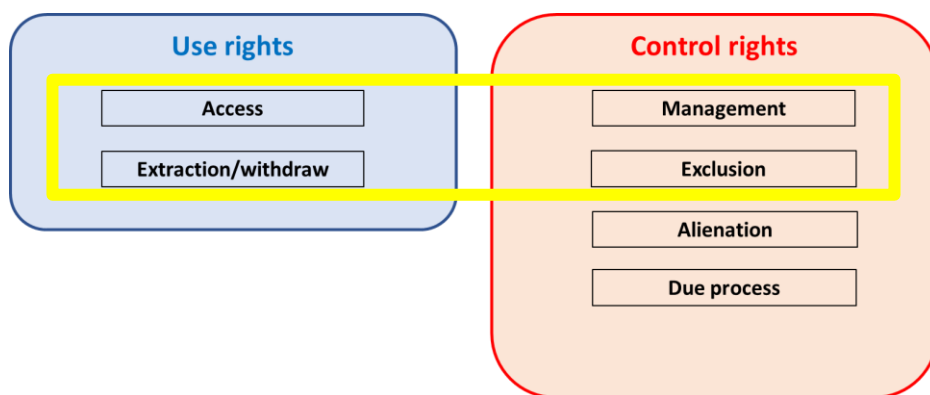


Figure 11: Illustration of the bundle of rights to resources, and four types of rights this analysis focuses on (in yellow box).

Results, as shown in **Figure 12**, suggest that use rights are much more commonly held compared to control rights. Respondents tend to be more certain about whether community members have use rights compared to control rights. For instance, of the 31 projects that are certain about use rights, 7 of them are also certain about IPLC having control rights, while 15 indicate communities only holding partial rights, and 9 indicating no control rights or don't know about community-level control rights.

⁷ Types of rights used in this document:

- **Access** rights allow a community and its members to enter an area.
- **Withdrawal** rights are the right to benefit from land, for subsistence or commercial purposes.
- **Management** rights can be defined by the legal limits of other rights, and it can also be used to empower a community to articulate its rights to alienation or the exclusion of particular resources.
- **Exclusion** is the ability to refuse another individual, group, or entity access to and use of a particular resource.
- **Alienation** is the right to alienate one's property or the right to transfer one's rights to another entity. Basically this is the right to sell or subdivide land resources.
- **Due Process** and Compensation is the right to due process and compensation in cases of eminent domain.

For more information, see: Schlager, E., and E. Ostrom. 1992. Property-rights regimes and natural resources: A conceptual analysis. *Land Economics*, 68:249–262.

⁸ Some would refer “use rights” as operational level rights that guide how a right holder operates, whereas “control rights” indicate holders’ rights to administrative functions over resources, such as enacting management directives, controlling uses, or transferring part of all rights to the resource. For more details, see: Sikor, T., J. He, and G. Lestrelin. 2017. Property rights regimes and natural resources: A conceptual analysis revisited. *World Development* 93:337-349.

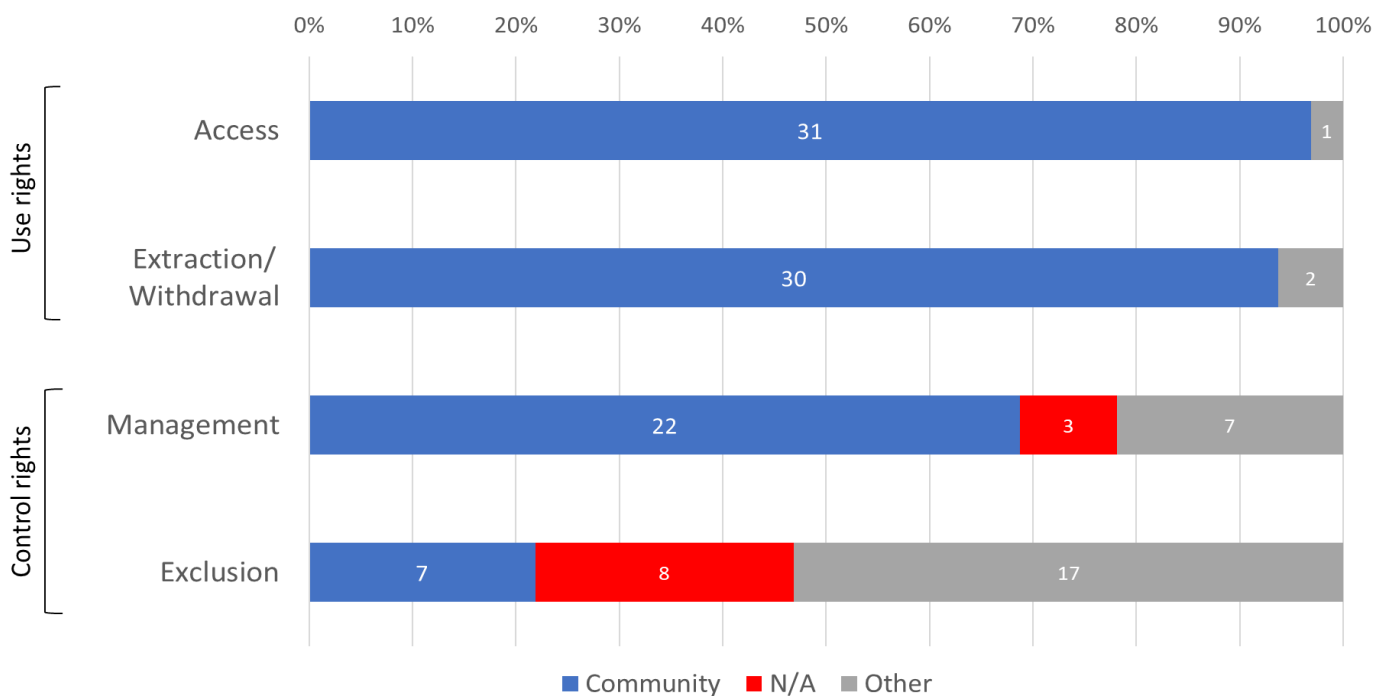


Figure 12: Distribution of property legal rights held by communities. In blue: communities hold the rights; in red: either the communities don't have the rights, or it is not specified in existing legislation; in gray: the respondents are not sure about whether IPLC hold rights, or respondents highlight nuances or variations across or within the communities they work with. Numbers represent the number of fCBC projects.

As expected, it is rare (nonexistent from this inventory) that a community has control rights to freshwater resources but no use rights. The majority of cases are a combination of full use rights and partial control rights (15 of 32 projects), where partial control rights refer mostly to management rights. Such pattern is in alignment with the common approach TNC projects or programs take, through changes in how natural resources are used, or through active management of resources. Based on additional details shared by projects, results suggest that, for now, projects are focused on making sure that use rights are present, and current strategies largely rely on management of the resources (both land and water) rather than excluding or controlling resources use.

It is also noteworthy that nearly a third of the projects (10 of 32) indicate uncertainty on control rights; either communities do not hold control rights or respondents are unclear about community-level control rights. The observed uncertainty raises some questions about whether the lack of control rights (exclusion rights in particular) poses limitations to addressing larger scale threats to freshwater resources such as dams, encroachment, or preventing people outside the community from engaging in illegal activities (e.g. illegal mining) on community lands and waters, and what feasible approaches or strategies might be to secure control rights to freshwater resources if necessary.

Beyond this snapshot, there are additional considerations to explore deeper so as to better understand the rights landscape, both for practitioners and the broader conservation and research community.

- Other types of rights, other non IPLC actors within the project area and beyond, and who holds these rights. For instance, literature⁹ suggests a third layer of rights (called 'authoritative rights') that define control rights, including definition and allocation rights¹⁰. Understanding whether IPLC have such authoritative rights, whether there are additional de facto rights (socially upheld or customary rights), what rights (use, control, and

⁹ *ibid.*

¹⁰ *ibid.* Definition rights: to define discretionary space for the exercise of control rights; Allocation rights: to assign control rights to particular actors, etc. See original article for more details.

authoritative) other actors hold, as well as rights to terrestrial resources could be helpful to better design CBC programs (Figure 13).

- Beyond the substance of rights (whether rights exist), whether the rights are upheld (i.e. assurance of rights) is another important lens - in other words, whether different rights to resources are consistently applied and enforced. The IPLC's sense towards tenure security could vary a lot, and lack of rights does not necessarily mean lack of (perceived) tenure security. For fCBC projects that are working on securing IPLC's rights to resources as one of their strategies, it would be useful to further explore if the emphasis is on exerting rights when IPLC already hold de jure rights, or on the recognition of control rights.

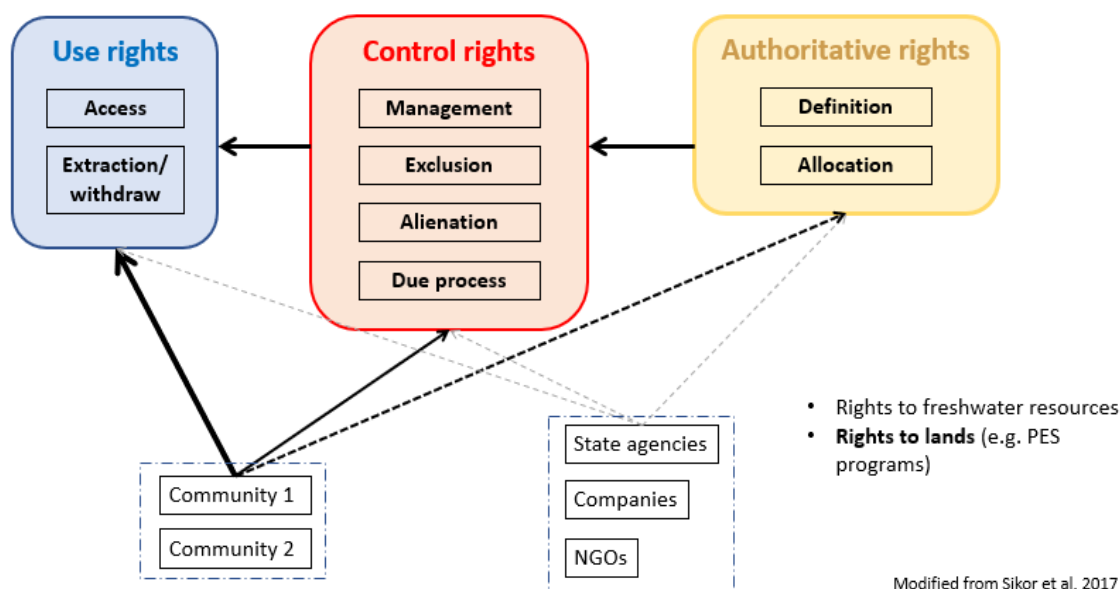


Figure 13: Additional considerations in understanding the rights landscape within and beyond project areas.

Free, Prior, and Informed Consent (FPIC) process and IPLC's levels of involvement

Obtaining Free, Prior and Informed Consent (FPIC)¹¹ and undergoing FPIC process throughout the project life cycle for activities that affect lands and freshwater resources to which IPLC have traditionally had access, occupied and/or used is being recognized as one of the cornerstones of the CBC approach and best practice. This inventory evaluates how surveyed TNC practitioners perceive the concept of FPIC, and how respondents self-assessed whether such a process is being implemented or followed. This exercise serves as an initial attempt to get a baseline towards building consistent understanding across TNC.

Eleven of the projects indicate that they have undergone a FPIC process and obtained FPIC of IPLC. An additional six indicate that they plan to undergo this process (see **Figure 14** below).

¹¹ For more information on FPIC, see Conservation by Design 2.0 Guidance Document (The Nature Conservancy 2016) and the forthcoming Human Rights Guide by TNC's GDEI and IPLC team.

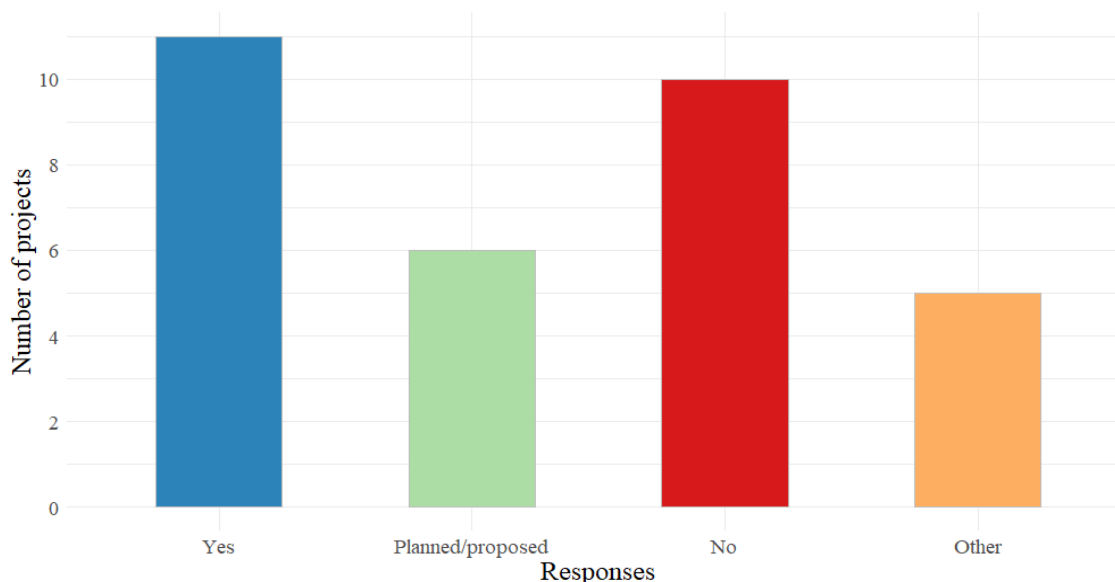


Figure 14: fCBC projects' inclusion of a Free, Prior, and Informed Consent (FPIC) process.

Results and comments in the survey suggest a general awareness from practitioners on this topic, but also point out confusion about how to do FPIC correctly and what activities count as FPIC. For instance, there is uncertainty regarding whether working with the communities' legal council at various levels, or if having agreements and approval by the community on all engagements is sufficient to be considered as FPIC.

For projects that have undergone the FPIC process, it is worth learning more about the detailed procedures and practices, including:

- How early and often do TNC staff meet with the IPLC?
- What are the steps taken to ensure that TNC is talking with the right members of the community and that community representation gives a voice to everyone?
- How is information flowing between TNC and the community to ensure that both TNC and the community are fully informed about each other's goals and objectives and the likely impacts of the project?
- How is consent by the community expressed? (for example, was it documented in a formal agreement, expressed as part of a community ceremony, etc.)

By adopting and modifying a 'ladder of involvement' provided by the OECD's Water Governance Initiative¹², the inventory further explores the overall pattern of IPLC's involvement in the projects to better understand to what degree

¹² The typology of levels of stakeholder engagement, adopted and modified from OECD. For the original OECD document, see: Akhmouch, A. and D. Clavreaul. 2016. Stakeholder engagement for inclusive water governance: "Practicing what we preach" with the OECD Water Governance Initiative. Water 8:204. <https://doi.org/10.3390/w8050204>

Communication: to make water-related information and data available to other parties, share information unilaterally, bilaterally, or multilaterally; make targeted audience more knowledgeable and sensitive to specific water issue; encourage stakeholders to relate to the issue and take action;

Consultation: to gather comments, perception, information, and experience of stakeholders; no obligation to take stakeholders' views into consideration in the final outcomes;

Participation: to provide opportunities to take part in the project process; does not entail that participants have an influence over decision making;

Representation: structural level of engagement with the objective to develop collective choices; often embedded in the organization's structure;

Partnerships: agreed-upon collaboration between stakeholders; characterized by joint agreement;

the communities are involved in decision-making at various stages of the projects, and to compare this with practitioners' assessment on FPIC. Based on the definition, the community theoretically should be at least 'represented' in the project's decision making to be considered true collaborative work. The green and blue bars in **Figure 15** show a relatively large number of projects where TNC works in formal partnerships or co-production with the communities, and/or communities are in full control of the work.

Projects that responded 'yes' for FPIC do have high levels of community involvement throughout the project process, as indicated by responses to other questions in the survey. A number of projects responded 'no', but are in fact engaging the communities at a level that would constitute good practices to meet FPIC criteria. This contrast highlights the need and opportunity for building consistent understanding across TNC, through guidelines and training, as well as opportunities to working these projects directly to apply or increase FPIC going forward¹³.

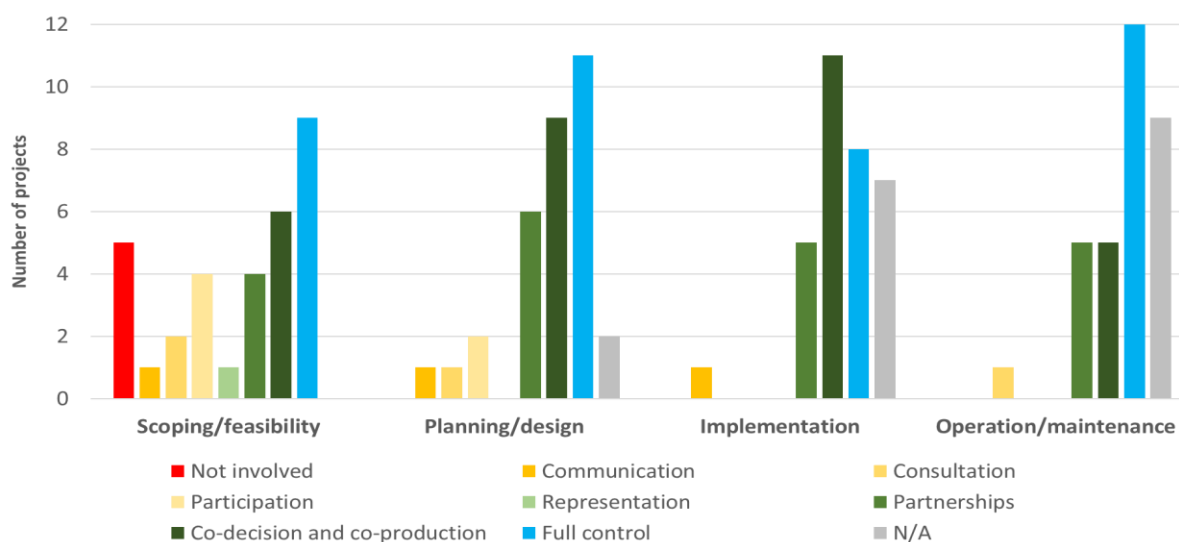


Figure 15: IPLCs' levels of involvement at different stages of the project. (n=32)

Human well-being objectives

Consistent with the IPLC team's Human Well-being and Conservation (HWB-C) Monitoring Framework (forthcoming) and T-roots survey¹⁴, this inventory groups human well-being objectives into four categories: Security benefits; Material opportunities for wealth creation; Empowerment, and Identity¹⁵. Results show there's a stronger focus on security (96.9%) and empowerment (87.5%) than there is on wealth creation (59.3%) or identity (12.5%). On average, each project has roughly seven human well-being objectives. More projects in developing countries focus on empowerment.

Co-decision and co-production: balanced share of power among stakeholders involved;

Full control: communities in charge of the project; have full decision making power.

¹³ A few projects responded 'no' to FPIC but also indicated IPLC having full control. This is likely to open another interesting discussion on the scope of FPIC and whether it applies to contexts where community have sovereignty/full control, as 'consent' may still imply a difference on which party is driving the project/decision making.

¹⁴ Tracing TNC's Roots in Indigenous- and Community-led Conservation (T-Roots). 2016. The Nature Conservancy, Arlington, VA.

https://connect.tnc.org/sites/lands/indigenous/Documents/TROOTS_Report_Final_Clean.pdf

¹⁵ Common outcomes for IPLC of these four focal areas, as defined in the forthcoming HWB-C framework:

Security: secure rights to territory or resources, including food and water security

Material opportunities for wealth creation: sustainable place-based economic opportunity

Empowerment: Ability to meaningfully participate in decision-making about territory our resources

Identity: Strong connection to place

For fCBC projects, it is not surprising that ‘improved water security’ is the most common objective. The specific breakdown, by detailed objectives and by developed vs. developing countries, for all objectives can be seen in **Figure 16** below.

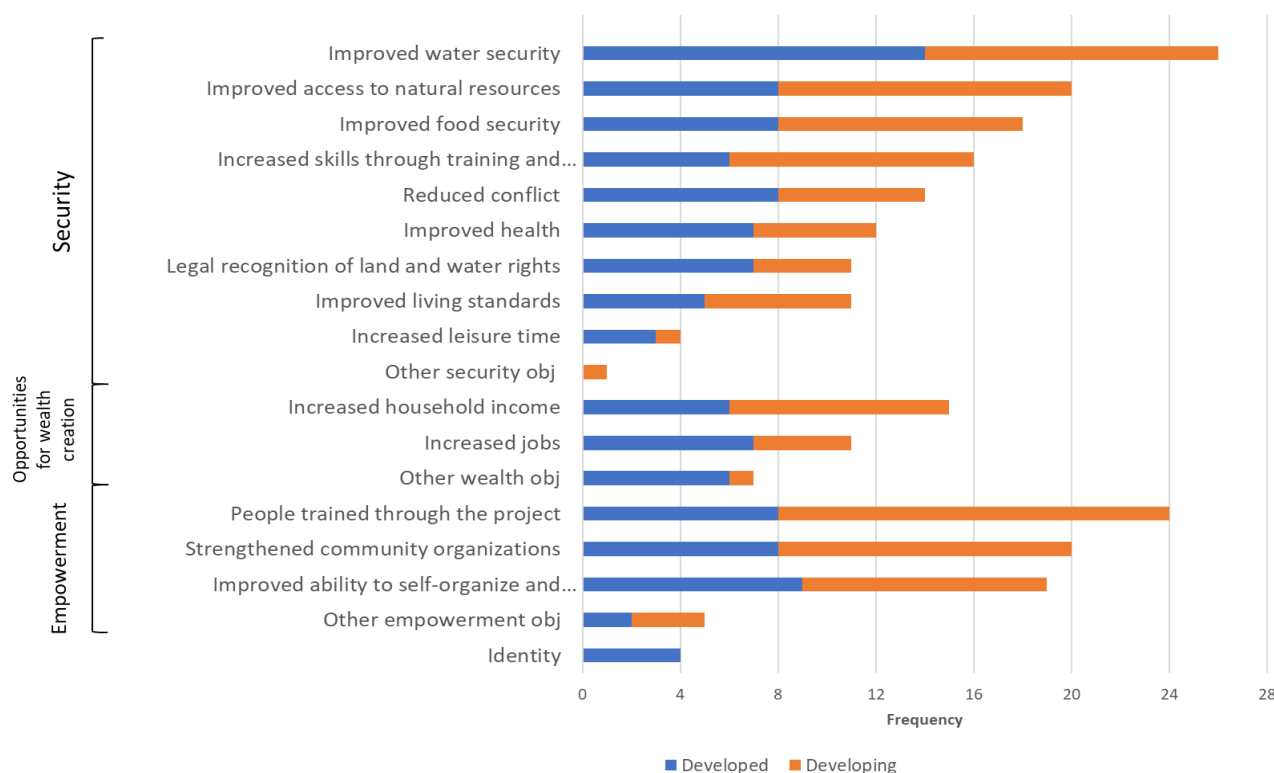


Figure 16: Human well-being objectives that fCBC projects identify.

About a third (11) of the projects indicate that the whole community or all community members are the intended direct beneficiary, but there are cases where only specific subgroups or members within communities are being targeted:

- Members of local watershed association and cooperatives, or indigenous organizations
- Certain occupations: small holder farmers (11), fishers (9), ranchers (6), rangers (5), anglers (1)
- Women, youth, elders (emphasized in 14 projects)

Number of people directly involved

More than half of the projects in the inventory reported on the numbers of community members directly involved in conservation to date, including data points for 62 communities. Fourteen projects track the gender composition of participants from 31 communities. Results show that more than 11,000 people from these communities are directly involved, either as participants in PES or other conservation activities, or as key representatives or participants in decision-making. For projects that report on gender, 47% of the participants are female, and 53% male.

As seen in **Figure 17** however, most communities have fewer than five people participating, and many projects are not documenting numbers of participants. It would be useful to follow up and inquire about what steps staff are (or need to be) taking to ensure that they are talking with the right members of the community and that representation gives a voice to everyone in that community.

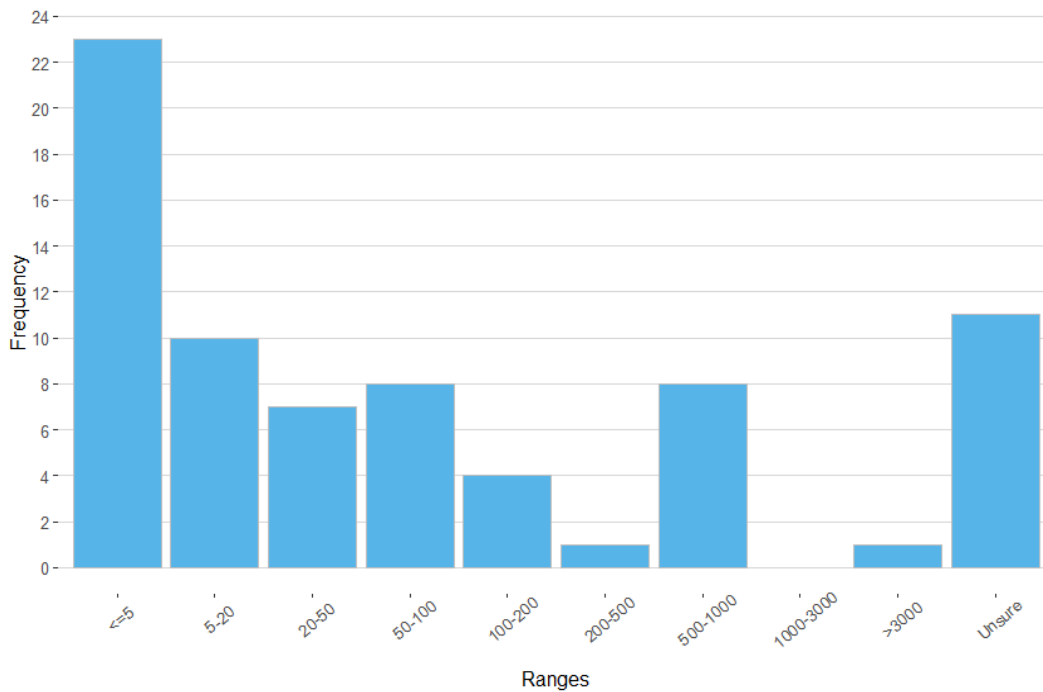


Figure 17: Numbers of people from IPLC directly involved in 28 (out of 32) projects.

IV. Project Implementation & Impacts

The last section turns to describe what projects are implementing on-the-ground. The term ‘strategy’ is defined in accordance with Conservation by Design 2.0¹⁶, as ‘the set of actions or interventions that a project implements in order to achieve a desired impact for nature and people’.

At least a third of the projects describe the selection of strategies and/or conservation activities as a result of a participatory process between TNC and IPLC or direct identification by IPLC themselves.

Strategies implemented

In alignment with the T-roots survey, strategies were placed into four groups: (1) change in legal status or classification of land and water, (2) change in management practices on land and water, (3) capacity building and leadership development, and (4) governance and policy. **Figure 18** below shows that, largely consistent with findings from the T-roots survey, fCBC projects also tend to use social-oriented strategies that lead to conservation outcomes (for people and nature) through strengthening the capacity of IPLC in decision making. This also suggest alignment with projects’ objectives on empowerment.

Changing legal status or securing rights, on the other hand, is less frequently implemented. As discussed in the previous section, the connection between the existence and exertion of use and/or control rights and strategy selection is an interesting topic for further research. For example, it is possible that in some areas, projects may not utilize securing rights as a strategy when communities don’t perceive tenure insecurity despite the lack of *de jure* rights to resources. If further research reveals that such strategies are not as widely utilized but are regarded as critical, it presents an opportunity to work with the IPLC and other partners to increase avenues for implementation and improvements.

¹⁶ Conservation by Design 2.0 Guidance Document. 2016. The Nature Conservancy, Arlington, VA.
<https://www.conservationgateway.org/ConservationPlanning/cbd/Pages/default.aspx>

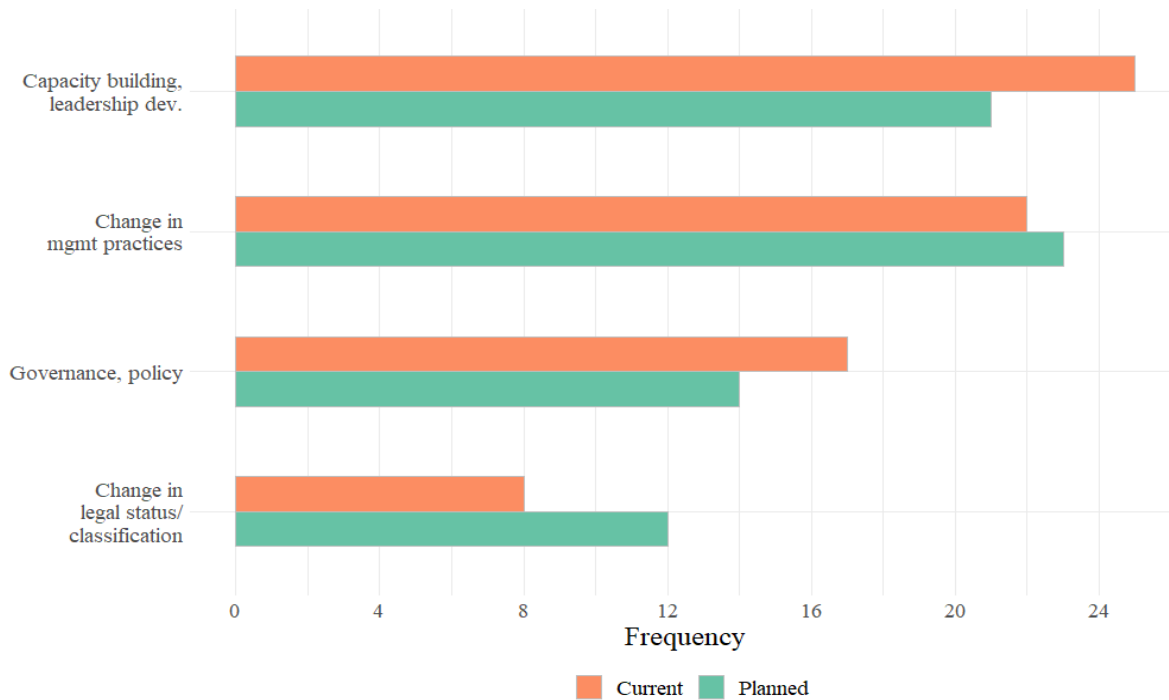


Figure 18: Groups of strategies being implemented in the fCBC projects. The bars in orange represent the strategy groups currently being implemented, and the bars in green represent the strategy groups that will be implemented in the future.

As seen in **Figure 19** below, when broken down, the top five most frequently implemented strategies are:

1. Strengthening the working relationships between actors (56.3%)
2. Establishing partnerships with existing local organizations or networks (53.1%)
3. Identifying funding opportunities (46.9%)
4. Building local institutions, improved governance, and/or self-organization (46.9%)
5. Providing technical training (43.8%)

Identifying funding opportunities is the top strategy that projects indicated they are planning for the future.

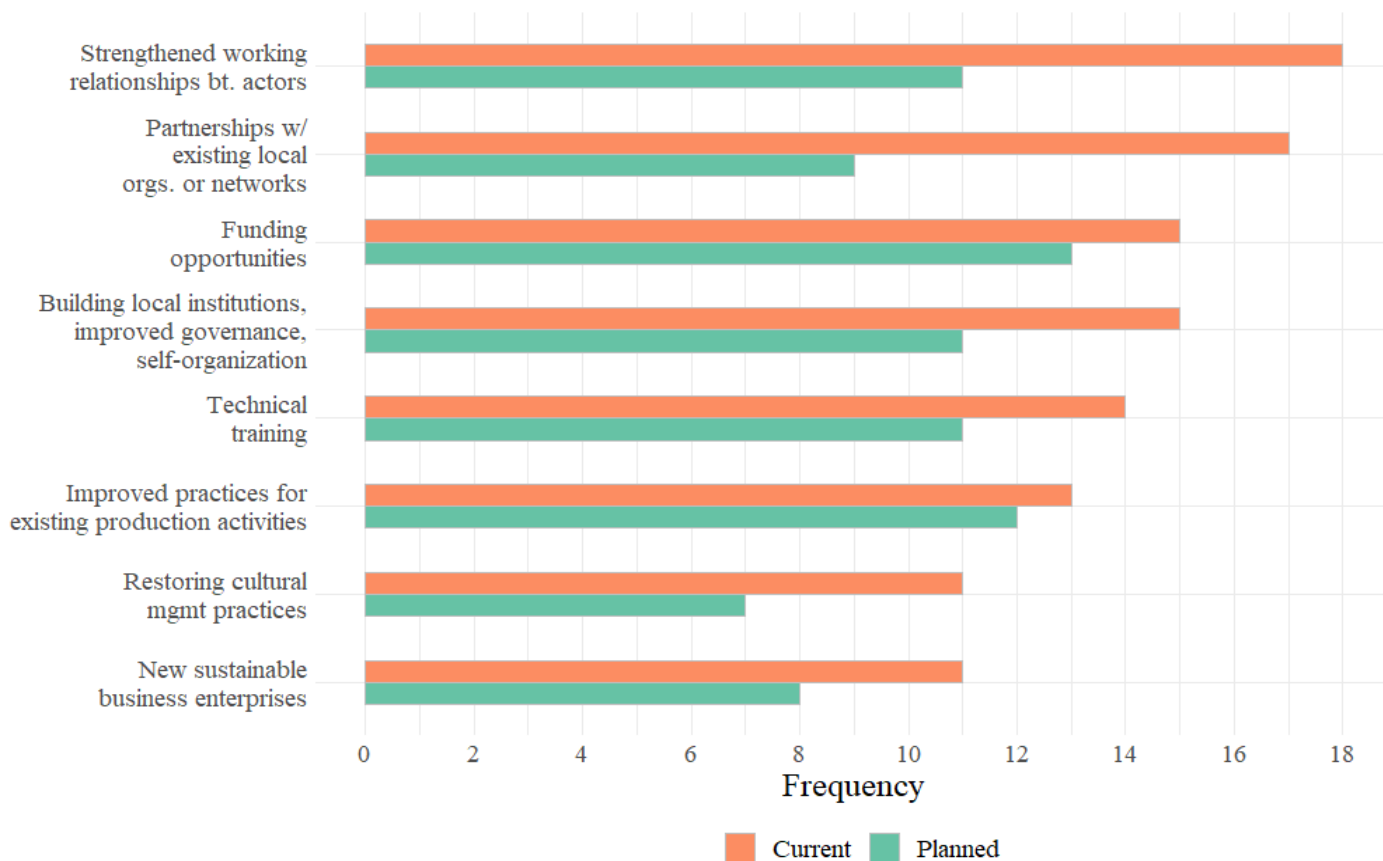


Figure 19: Most frequently implemented strategies by fCBC projects. The bars in orange represent the strategies that are currently being implemented, and the bars in green represent the strategies that are planned to be implemented in the future.

On-the-ground conservation activities implemented

Another way to examine implementation is to focus on the more narrowly defined conservation activities in terms of protection, restoration, or best management practices. The frequency of conservation interventions that the projects are or will be implementing on-the-ground can be seen in **Figure 20** below. The results show that land and water protection and restoration are the top two on-the-ground activities currently being implemented by projects, while fisheries management and agricultural and ranching best management practices (BMPs) are the top two interventions being planned for the future.

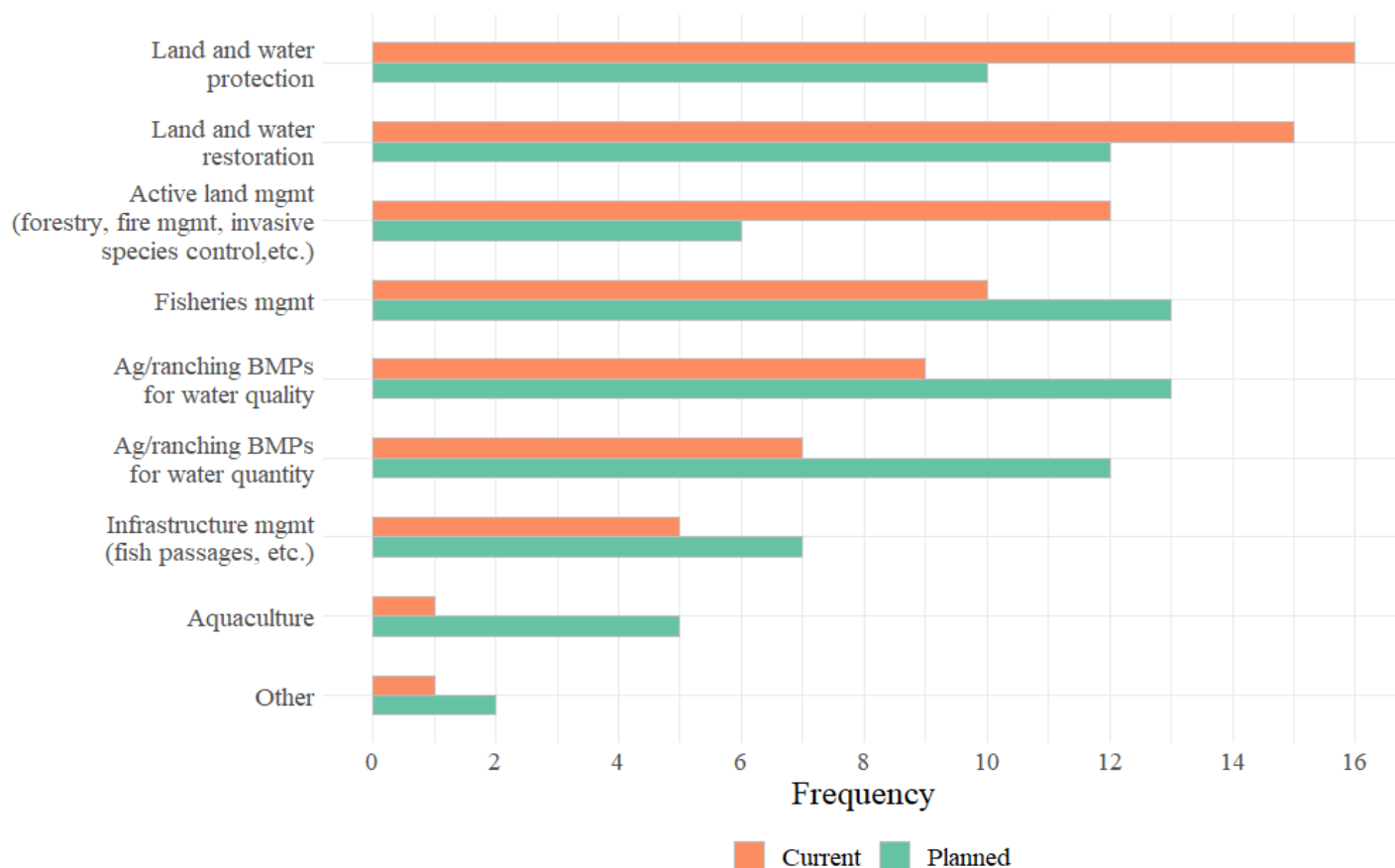


Figure 20: On-the-ground conservation activities being implemented by fCBC projects. “Other” includes culture and heritage management of sites, and water leasing.

Dissimilarities between projects and typology of fCBC

We hypothesize that there are two main typologies for fCBC: (1) management of the freshwater resource itself (i.e. in the water), and (2) management of terrestrial resources that impact freshwater resources (i.e. on the land around freshwater). Based on the co-occurrence of different strategies and on-the-ground activities they are currently implementing, we are able to plot the dissimilarities between projects using Non-metric multidimensional scaling (NMDS)¹⁷ to test this hypothesis, as shown in **Figure 21**.

With the limited sample size, the ordination plot does not display a clear pattern or grouping, other than by region. However, if we simulate strategies or conservation activities that are more likely to be driving the distribution pattern of projects along the dimensions (i.e. looking at intrinsic variables), ‘fisheries management’ and ‘improved practices of existing production activities’ appear to be explaining some of the variations, which is loosely in agreement with the typology hypothesis.

¹⁷ NMDS is an indirect gradient analysis approach that produces an ordination based on a dissimilarity matrix. In this analysis, the dissimilarity between projects are calculated based on the presence/absence of each strategy and activity. Based on each pairwise comparison, projects are plotted along two dimensions (each dot represents a project). The greater the distance between the dots in the ordination plot, the greater the dissimilarity (in NMDS, dissimilarity or distance is substituted with ranks instead of the actual dissimilarity coefficient).

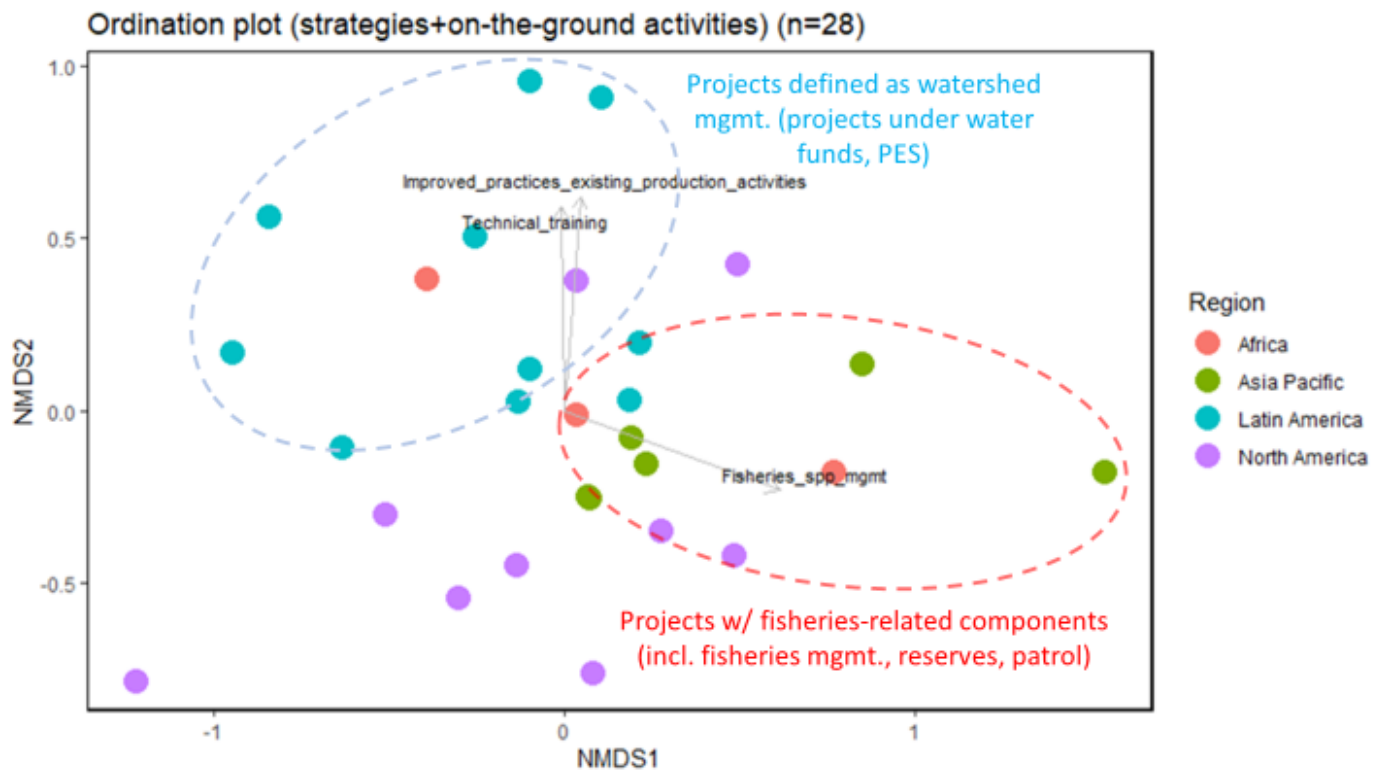


Figure 21: (Dis)similarities between fCBC projects and grouping. Distance between projects are calculated based on the presence/absence of each strategy and activity. Based on each pairwise comparison, projects are plotted along two dimensions (each dot represents a project). The greater the distance between the dots in the ordination plot, the greater the dissimilarity. Two major typologies: (1) around fisheries management (in the water); and (2) around watershed conservation/management (on the land around water).

Activities related to climate change

It is recognized that IPLC are particularly vulnerable to impacts from climate change such as increased extreme floods and droughts, so the survey inquired about whether fCBC projects are implementing or are considering activities that target climate adaptation and mitigation issues. The results (see **Figure 22** below) show that while not many (only 38%) of the projects are currently implementing such activities, up to 63% indicated that they plan to in the future. The overall interest in integrating climate change into project planning highlight the need for more guidance and support.

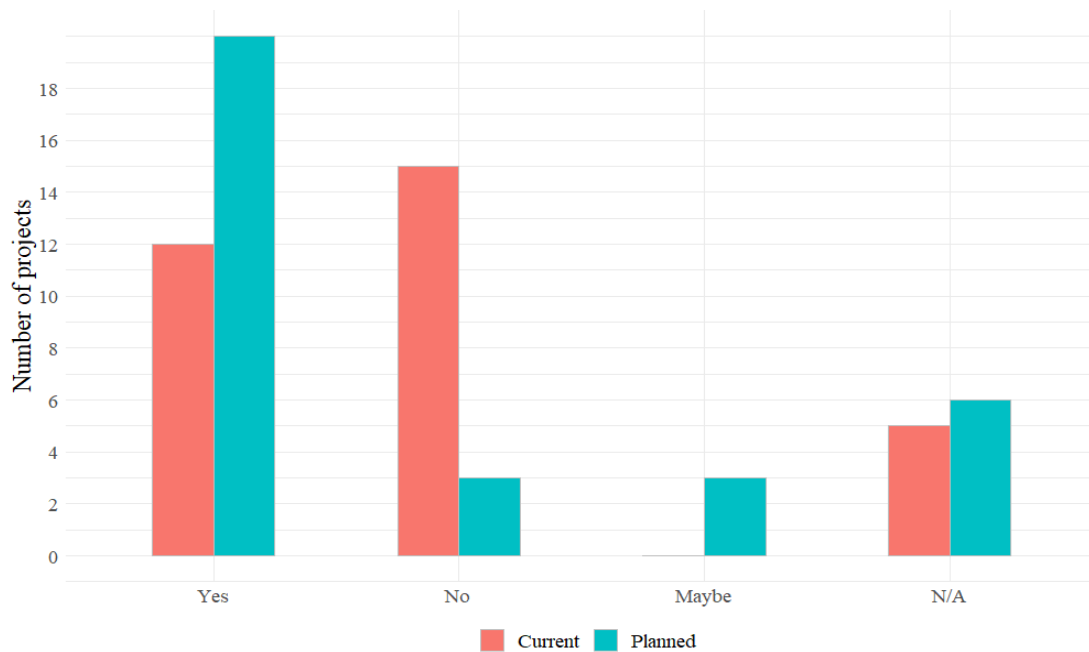


Figure 22: Implementation of activities targeting climate change related issues. “Maybe” is representative of the projects that will conduct an analysis, and then implementation depends on the results and available resources. “N/A” is representative of (1) it’s too early in the project to tell (still designing); or (2) the project is already concluded, so not applicable.

M&E and benefits to date

In addition to learning about what the projects are doing, the survey also looks into whether or not projects are monitoring and evaluating their efforts (both implementation and outcomes). 50% of the projects indicated having developed a Monitoring and Evaluation (M&E) plan and 38% indicated they plan to in the future or are in the process of developing one. More than half of the projects also mention that the IPLC are, or will be, involved with identifying the indicators and developing the M&E plan.

More than two-thirds (68.8%) of the projects identify funding or financial issues as the major gap in design and/or implementation M&E, followed by staff capacity (46.9%) and science (including social sciences, overall design of M&E, and indicator selection) (37.5%). The need for support in developing indicators and/or measures for socio-economic and human well-being monitoring, and the lack of social science capacity within TNC programs are worth underscoring in CBC work. One project shared that metrics developed around IPLC impacts were met initially with hostility due to the history of colonization and objection to ‘to be studied by Western science’.

For projects that started implementation and also have M&E in place (around 40% of survey projects), examples of actual biodiversity and human well-being benefits observed or measured by projects to date include:

Biodiversity and environmental benefits

- Healthier fish populations (increased diversity, abundance, spawning success)
- Decrease in illegal fishing reporting
- Increased macroinvertebrate diversity
- Reduced agricultural water consumption and more water staying instream
- Improved water quality
- Forest restoration – good survival rate
- Restoration of traditional canal system to increase infiltration

- Increase in riparian forest cover

Human well-being benefits

- Increased income
- More local participation
- Sense of healthy river & connection to nature

Reported human well-being benefits in the inventory are more on the progress or implementation (e.g. numbers of people trained) rather than actual impacts or benefits. This gap suggests a need for additional guidance and support.

Common challenges and lessons learned to work with IPLC in fCBC

Through qualitative analysis, we clustered five common themes of challenges: (1) trust and relationships, (2) time, (3) resources, (4) TNC's sphere of control, and (5) on-the-ground implementation. While many of these are not unique to fCBC or CBC, they still highlight the importance as key areas of focus in future work, and also indicate the potential for sharing lessons learned across projects. Other challenges underscore additional structural or managerial issues for TNC at large.

- **Trust & relationship**
 - Lack of local connection to enable trust building: e.g. lack of indigenous or local staff at TNC
 - The communities' knowledge of who we (TNC) are, how long we're there for, what our ultimate intentions are, especially when there are complex historic challenges
 - Relationship with broader IPLC members
 - Perception towards TNC owning land and water rights
- **Time**
 - Time necessary for appropriate level of engagement and relationship building
 - Time need to fully understand community structures and power dynamics
 - Misalignment with common grant and funding cycles, when there's pressure to report on short-term, quantifiable outcomes
- **Resources**
 - Funding
 - Staffing, local capacity
- **TNC's sphere of control**
 - To what extent TNC has control over project outcomes
 - Other (higher priority) development challenges for the communities (illiteracy, school, medical systems, energy, etc.)
 - Broader political contexts (e.g. social conflicts, weak social organization)
- **Implementation**
 - Long term commitment from the communities, when TNC is distant to the communities
 - Execution of plans
 - Geographic scale and scope of needs

The crucial role of trust in working with IPLC, as well as the time required to build trust, is widely recognized by fCBC projects. The frequently highlighted mismatch between time needed for relationship building and grant cycles/funding requirements by donors speaks to the need to improve the way we work internally and to educate donors of the time it

takes to foster healthy and sustainable relationships to achieve conservation outcomes for people and nature. While trust and time as major challenges is not unique to CBC, the legacies of colonization, displacement, and other power imbalances that still impact many IPLC today make it essential to engage communities with caution and respect. Communication appears to be another underlying challenge across these themes, even though not explicitly called out in the responses. Targeted efforts and investments in thoughtful, cross-cultural communication on multiple fronts – with the IPLC (e.g. FPIC process, relationship building), with donors/funders and other stakeholders (e.g. funding cycle, why working with IPLC), and internally within TNC (e.g. how working with IPLC aligns with conservation outcomes, resource allocation) – would be one of the cornerstones to address these barriers.

Opportunities for TNC to work with IPLC

Through the fCBC work to date, projects also recognize the many opportunities and benefits (beyond just conservation benefits) through working with IPLC:

- Critical in building partnerships/alliances to advance shared goals
- Become more sensitive about IPLC's history and culture
- Leverage local expertise and traditional knowledge
- Leverage IPLC's voice and commitment
- Opens up more opportunities for collaboration in other areas, new/better engagement with supporters
- Longevity/sustainability of on-the-ground activities

CAVEATS OF THIS INVENTORY

Due to limitations in the survey design and data collection process, several caveats are present for this inventory:

- A 64% response rate means information and learnings from the remaining 18 fCBC projects identified through scoping are not captured in the analyses. Therefore, results only represent part of TNC's work in this field.
- It is very likely that other on-going fCBC projects from certain regions (for example, new regions/country programs including Europe and India) are missed in the scoping. Neither are other historic/concluded projects (especially from the North America Region) included that would provide additional valuable reflections.
- Because of the uniqueness of freshwater, in many cases it has been difficult to determine whether some of the traditionally defined 'terrestrial' or 'coastal' projects/programs also have components that can be considered fCBC. Examples include forest-related IPLC work in the Amazon or Southeast Asia (Indonesia, Myanmar) and coastal work in the Pacific Northwest.
- Defining what a "project" is has been a major challenge. This inventory deferred to respondents to decide what "project" means in their respective contexts. It is likely that in some cases "projects" and "programs" are not distinguished, and a "program" may include multiple "projects" with different IPLC. The distinction between program and project also affects its inclusion in the inventory per the inclusion criteria. For instance, a water fund as "program" as a whole may not meet the definition of fCBC (in terms of freshwater conservation objectives and/or IPLC's role in decision making), but individual "projects" with communities within the water fund watershed may qualify.
- Survivorship bias – due to the lack of documentation of failures or less successful stories, an inventory of 'surviving' projects may have missed additional opportunities to learn from failures.
- Last but not least, we only reached out to TNC staff to build the inventory, thus information summarized from the inventory only speaks to TNC's perspective.

APPENDIX

List of 32 fCBC projects included in the analyses

Project name	Country	TNC Region
Okavango Basin Community-based Conservation Project	Angola	Africa
Engaging local communities in the management of Mbe-Komo basin	Gabon	Africa
Engaging Communities and Protecting Freshwater Ecosystems in Lac Oguemoue	Gabon	Africa
Tuungane ('Let's Unite') in Lake Tanganyika	Tanzania	Africa
Gayini Nimmie Caira	Australia	Asia Pacific
Cape York bioregion projects	Australia	Asia Pacific
Kimberley region projects - Healthy Country Planning, Development by Design and Fire Management	Australia	Asia Pacific
Top End region – Healthy Country Planning, Development by Design and Fire Management	Australia	Asia Pacific
Capacity building for Wuma River watershed, tributary of Chishui River (五马河社区巡护能力建设培训 - 赤水河流域淡水生态系统保护与修复)	China	Asia Pacific
Yangtze Finless Porpoise reserves capacity building (长江江豚保护区能力建设项目)	China	Asia Pacific
Mataura Catchment by Design	New Zealand	Asia Pacific
Community-Based Conservation in Freshwater Ecosystems in Tapajos Basin	Brazil	Latin America
Ecosystem-based Adaptation (EbA) in the Magdalena River Basin (Adaptación basada en Ecosistemas (AbE) en la cuenca del río Magdalena)	Colombia	Latin America
Empower and training local communities to monitor aquatic biodiversity and establish conservation agreements in the Bolo River Basin (under Agua por la Vida)	Colombia	Latin America
Empowerment and training of the Bocacerrada community on monitoring freshwater biodiversity and implementing a demonstration fishery project	Colombia	Latin America
Northern Andes - Community-Based Conservation in Freshwater Ecosystems of South America	Ecuador	Latin America
Water for the Future, part of Guatemala City Water Fund/FUNCAGUA	Guatemala	Latin America
Indigenous Landscapes - Initiative for Conservation in the Andean Amazon (ICAA) - San Martin (Paisajes Indígenas - Iniciativa para la Conservación de la Amazonía Andina)	Peru	Latin America
Aquafondo/Lima - Advancing Water Security and Economic Sustainability in Perú	Peru	Latin America
Water Funds and Replenishment / Water Security for the communities of the Chilca Watershed	Peru	Latin America
Piura Water Fund - Adaptation of Water Resource Management to Climate Change	Peru	Latin America
Cusco Water Fund - Adaptation of Water Resource Management to Climate Change	Peru	Latin America
Blue River Watershed Plan	United States	North America
Blue River or Arbuckle Simpson Water Fund	United States	North America
Lakes of the Arbuckles Watershed Plan	United States	North America
Verde River Water Projects	United States	North America
Penobscot River Restoration Project	United States	North America

(List of 32 fCBC projects included in the analyses - continued)

Great Lakes Sustainable Fisheries - Lake Michigan/Huron Project and Lake Superior Projects	United States	North America
Jicarilla Apache Nation Water Marketing - San Juan River	United States	North America
Southern Ute Indian Tribe/Pine River Project	United States	North America
Gila River Protection	United States	North America
Harney Basin Community-Based Water Planning (CBWP) Collaborative	United States	North America

List of other fCBC project identified at TNC as of Nov 2019 (not included in the analyses)

Project name	Country	TNC Region
Waikato Water Fund	New Zealand	Asia Pacific
Waipa Impact Investment	New Zealand	Asia Pacific
Ohaaki papakainga Impact Investment	New Zealand	Asia Pacific
Waiapu Impact Investment	New Zealand	Asia Pacific
Projects within Guandu Watershed (with Quilombola Association in the Rio Claro municipality)	Brazil	Latin America
Projects within the Upper Iguaçu watershed (part of the Curitiba program)	Brazil	Latin America
Indigenous Landscapes - Initiative for Conservation in the Andean Amazon (ICAA) - Cofán Landscape	Ecuador	Latin America
Tungurahua water fund	Ecuador	Latin America
FONAG - Fondo para la protección del Agua	Ecuador	Latin America
Indigenous Landscapes - Initiative for Conservation in the Andean Amazon (ICAA) - Ucayali river	Peru	Latin America
Colorado River Program Tribal Water Initiative	United States	North America
Ute Mountain Ute Partnership	United States	North America
Atchafalaya River Basin Initiative	United States	North America
Meduxnekeag River	United States	North America
Meddybemps Lake land	United States	North America
Indigenous Sustenance Fishing Legislation	United States	North America
Projects under Rio Grande Water Fund program	United States	North America
Project with Bad River Band of Lake Superior Tribe Chippewa Indian Reservation	United States	North America
Projects with the Oneida Nation in Northeast WI	United States	North America
Red Cliff Tribal hatchery	United States	North America
Northwest Territories: Thaidene Nënë Conservation Initiative	Canada	North America
Community-based conservation in the Devnadi Project - Resilient Groundwater Futures	India	India