

How to pick a tree-planting project? Mongabay launches transparency tool to help supporters decide

by Liz Kimbrough on 17 May 2021

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- *Our directory is built on a three-month research effort to record publicly available information on more than 350 tree-planting projects in 80 countries.*
- *Rather than make an assessment (and perceived endorsement) of the quality of the projects, Mongabay's review is based on how much information is publicly disclosed by an organization.*
- *Here, we present some key questions to ask and criteria to consider when evaluating the legitimacy and effectiveness of a tree-planting project.*

Planting trees is all the rage right now — billionaires from Elon Musk to Marc Benioff are touting the benefits of massive reforestation — but it's hard to identify legitimate initiatives and even more difficult to figure out which are effective and can deliver on their promises.

"If you buy something online and you pay for it and then it never arrives, you're going to complain," Pieter Van Midwoud, chief tree-planting officer at Ecosia, a search engine that generates revenue to plant trees, told Mongabay. "But with tree planting, it doesn't work that way because the thing that you ordered never gets delivered to your doorstep. It's planted somewhere else. So, it's always a bit more difficult to find out whether your order was actually done."

So how can an investor or donor decide what projects to support? What kinds of questions should we be asking to assess tree-planting projects and ensure they are delivering the results they promise?



Green Ethiopia, an eco-humanitarian NGO that works to reforest degraded landscapes. Photo by Green Ethiopia via Ecosia.

Mongabay has put together a directory to show whether tree-planting and reforestation projects publicly disclose the criteria that experts say are keys to success. We thought this would be a useful starting point for people wanting to fund reforestation, so they could identify projects that align with their interests.

Our Reforestation Directory (<https://reforestation.app>) is built on a three-month research effort to record publicly available information on more than 350 tree-planting projects in 80 countries. Rather than make an assessment (and perceived endorsement) of the quality of the projects, Mongabay's review is based on how much information is publicly disclosed by an organization.

Explore the whole database of reforestation and tree-planting projects at Reforestation.app (<https://reforestation.app>).

Our list of criteria was primarily drawn from the Forest Landscape Restoration (FLR) approach, widely heralded as the gold standard across the restoration sector. The FLR approach centers on the people that depend on the forest, aiming to restore ecological functionality while enhancing human well-being, with a strong focus on monitoring and adapting the project to changes over time.

Use the filters above to identify projects that match your preferred criteria. Read more about our methodology here (<https://reforestation.app/about>).

Overall, we found a lack of transparency and reporting surrounding the specifics of tree-planting projects via their publicly accessible websites. For instance, nearly half did not specify the number of trees to be planted or the size of the project, and two-thirds of the projects did not disclose the species planted. More than two-thirds of projects did not disclose how they follow up on projects or the survival rates of planted trees.

An important caveat is that our database is based entirely on an organization's self-reporting. Currently, no formal third-party certification or verification process exists for restoration projects. It can take thousands of dollars and several months for a researcher to independently assess the quality of a project, according to Robin Chazdon, a global forest and landscape restoration expert. Some funders have specialized positions for vetting projects. Ecosia, for instance, has a full-time tree-planting officer.

On the other hand, the absence of information on an organization's website doesn't necessarily mean the organization has neglected to address those criteria. Mongabay spoke with several organizations about their reasons for omitting data. In some cases, it was as simple as a lag in updating the website, or because that information is given only to the funder and not to the public.

However, on the whole, transparency is a signal that an organization is aware of the complexities involved in a successful restoration project and has both the staff and capacity to organize, monitor, and report back on its results. If an organization does not disclose this information, it may be prudent to ask why.

"At minimum, we should know the location, the number of trees, and the species of trees planted. And this is something we really have to get into the minds of everyone who funds tree planting," Van Midwoud said.

"Otherwise ... it's like ordering a package and simply accepting it never arrived."

Here, we present some key questions to ask and criteria to consider when evaluating the legitimacy and effectiveness of a tree-planting project.

Popular in the Community



Seedlings growing in Atsbi, Ethiopia. Successful reforestation demands quality seed collection, pre-treatments and nursery management practices. Photo via WeForest.

What is the goal? What is the strategy?

We examined whether organizations clearly stated the primary goals of a tree-planting project. An organization may want to plant trees for ecological reasons, such as safeguarding local plant and animal species; socioeconomic reasons like improving agriculture or generating income; or a combination of the ecological and socioeconomic, such as fighting climate change by storing carbon, protecting water resources, or stabilizing the soil.

According to Forest Landscape Restoration principles, projects should have multiple goals in both the ecological and social categories. Setting clear goals helps project managers plan their approach and measure success.

"Rather than being an end goal in itself, reforestation is a means to achieving various goals," Chazdon and silviculture researcher Pedro Brancalion wrote in a 2019

(<https://onlinelibrary.wiley.com/doi/10.1111/gcb.15498#gcb15498-bib-0037>) study published in *Global Change Biology*. "These objectives should be defined beforehand, to allow appropriate project planning, implementation and monitoring."

Ecosia's goal, for instance, is to plant trees in high-risk biodiversity areas, which it defines as areas where more than 70% of the original ecosystem has been destroyed and the remaining 30% is at a high risk of also disappearing. In addition, its goal is for these trees to benefit local communities. Hence its decision to work with communities in areas such as the Atlantic Forest in Brazil, an ecosystem where less than 30%

(<https://advances.sciencemag.org/content/7/4/eabc4547#ref-56>) of the native vegetation remains.

Another consideration is whether the project *addresses known threats in the area* such as creating habitat for or protecting endangered species. For instance, the Institute for Ecological Research (IPÊ (<https://ipe.org.br/en/>)) in Brazil's Atlantic forest has planted trees to create wilderness corridors, bringing the endangered black lion tamarin back from the brink of extinction (<https://news.mongabay.com/2021/05/how-settlers-scientists-and-a-women-led-industry-saved-brazils-rarest-primate/>) while also provide critical connectivity for jaguars, pumas, and ocelots.



Thanks to reforestation efforts in Brazil's Atlantic forest, the black lion tamarin has been upgraded from critically endangered to endangered. Photo by IPÊ (Instituto de Pesquisas Ecológicas) via WeForest.

What is the approach? Is it justified?

"There's no single approach you can say is better than another," Jessica Chalmers, director of partnerships at WeForest (<https://www.weforest.org/>), told Mongabay. "It all just depends on where you are. It depends on the context."

Reforestation approaches fall under the umbrella of either active or passive restoration. Active restoration, such as directly planting seeds or seedlings (young trees) were among the most popular approaches in our database, with seedling planting used by 256 of the 350 projects.

Although planting trees is appealing and makes for a great photo-op, allowing nature to take its course, a technique known as natural regeneration, can be both cheaper and more effective in some cases. This is a key point often overlooked by funders.

"Planting is great, because it gets people engaged," Thomas Crowther, a researcher from ETH Zürich said in an interview with Salesforce (<https://www.salesforce.com/news/stories/one-trillion-trees-to-combat-climate-change-why-its-not-so-outlandish/>). "But ... if we can allow many of these forests to regenerate, they'll do so much quicker than we can plant. It would take the whole population of the planet an insane amount of time to plant a trillion trees."

The assisted natural regeneration approach allows deforested or degraded lands to regrow with some help from humans, protecting the restoration areas from competing vegetation (like grasses), wildfire, and disruptions from humans and other animals. When land is properly protected and close to another native forest, seeds will be delivered naturally by birds, mammals, wind, and other dispersal agents.

"Tree planting is ... very popular. People love tree planting," Chalmers said. "But [it's] probably the thing we do the least, because we're all about thriving forests. So whatever the method is that we select, it's because that's got the best chance of success."

WeForest often uses natural regeneration, Chalmers said, and this looks different in different places. The WeForest Zambia project, for example, works with hundreds of small farmers who own about 2 hectares (5 acres) of land each. "This land [is] not deforested, but degraded," Chalmers said. "That means that given enough chance for the trees to regrow, they'll do it on their own, but they need to be assisted to do it. Here [in Zambia], no trees are planted because planting trees and establishing nurseries take a lot of water. The approach here is to be able to support the farmers with an alternative source of livelihood, such as beekeeping, as their forests regenerate."

Often, overlapping approaches are used. To relieve the pressure on areas that are recovering naturally and to support livelihoods, many projects rely on agroforestry: the intentional introduction of trees into an agricultural landscape.

"In general terms, agroforestry is wonderful," Chalmers said. "Because combining trees and farms benefits people and benefits the environment. It's the ultimate win-win, if you get it right. The trick with agroforestry, though, is that is you want a diverse system. Agroforestry is not just two different types of trees."



A woman working in a tree nursery to supply reforestation in the Maji Mazuri and Makutano forests of Kenya. Photo by The Green Belt Movement courtesy of Ecosia.

Who is participating?

This set of criteria has to do with the management and ownership of projects. We looked for answers to nuts-and-bolts questions such as: Who is the *lead organization*? What *type of organization* is managing the project (NGO, government, private, community, etc.)? *Who is involved* (academia, local communities, nonprofit, government, corporate)? Does the project *have partners*?

funder, such as Ecosia, their partners on the ground should be clearly stated.

Is the local community involved? Who is benefiting?

"[U]ltimately all of these questions come down to: 'Who are these trees benefiting?'" Ariel Maldonado, founder of GoGreenSaveGreen, writes in Euronews (<https://www.euronews.com/living/2021/01/06/how-to-tell-the-difference-between-tree-planting-schemes-and-scams>).

Including local people, understanding who the stakeholders are and ensuring that they are all involved and represented from the beginning is crucial to success. In a survey (<https://www.mdpi.com/1999-4907/11/9/938>) of global restoration projects, researchers found that conflicting goals between local communities and project managers were the most common cause of project failures and problems.

"[Local communities] are the key to success and have the most to gain from the project," according to the study "Ten Golden Rules for Reforestation to Optimise Carbon Sequestration, Biodiversity Recovery and Livelihood Benefits" (<https://onlinelibrary.wiley.com/doi/10.1111/gcb.15498#gcb15498-bib-0080>) published by the Royal Botanical Gardens, Kew, and partners in January 2021.

The Ten Golden Rules study gives a few examples of exemplary tree-planting projects that center local people, including a project in Tanzania that uses traditional knowledge to inform land management, and a community-led project in Madagascar restoring degraded areas with native species.

"If [local communities'] needs are heard and taken into consideration, and they are informed about the environmental issues the project is addressing, they are more likely to support the project and help to deliver successful outcomes in the long term," the study says.

It is often the locals who do the actual work on the ground, such as maintaining and protecting reforestation sites. Research shows this work can increase local employment opportunities and improve livelihoods when done correctly.

A selection of tree planting projects that are run by community associations or cooperatives and involve local seedling nurseries. Find available project details on reforestation.app (<https://reforestation.app>)

Does it have a gender component?

Projects that involve women and address gender from the planning and design stages have better outcomes, according to a 2017 report (https://www.climateinvestmentfunds.org/sites/cif_enc/files/knowledge-documents/gender_and_sustainable_forest_management.pdf) on gender and sustainable forest management.

Around 350 million people who live in or near forests rely on forest resources for income and subsistence. Women, in particular, may rely on forests for up to half of their income in these areas. Cultural norms in some areas exclude women from participating in local forest governance, despite their reliance on forest resources.

"In some countries, men and women have different rights to land and trees, which affects those with insecure rights, mostly women, from effectively participating in reforestation activities," the Ten Golden Rules study says. "It is essential to consider those inequalities."



Women planting seedlings in one of the oldest remaining dry afromontane forests in Ethiopia. Photo © DVCorstanje via WeForest.

Where is the project taking place?

Selecting the appropriate areas for reforestation is critical. Afforestation, or planting trees in lands that do not historically have trees (such as savanna and tundra), can actually release carbon from the ground and be destructive to the ecosystem.

"Tree planting now dominates political and popular agendas and is often presented as an easy answer to the climate crisis, as well as a way for corporate companies to mitigate their carbon emissions, but sadly, it isn't as simple as that," Kate Hardwick, conservation partnership coordinator at RBG Kew and an author of the Ten Golden Rules paper, said in a statement.

"When people plant the wrong trees in the wrong place, it can cause considerably more damage than benefits, failing to help people or nature."

A benefit to having the specific location for a project is that individuals can loosely monitor large reforestation projects themselves using high-resolution satellite imagery, now freely available to the public via platforms such as Global Forest Watch (<https://www.globalforestwatch.org/>).

Using maps and explicit locations provided by each project, Mongabay determined which ecozones (FAO 2010 (<http://www.fao.org/3/ap861e/ap861e00.pdf>)) or *forest types* many of the projects fell within. Looking into these ecozones can help funders and the projects themselves ask whether planting trees in certain areas is appropriate. Is it afforestation or reforestation? Projects can also make use of historical data, local knowledge and tools such as this new map (<https://crowtherlab.pageflow.io/trees-against-climate-change-the-global-restoration-and-carbon-storage-potential#215055>) created by the Crowther Lab (<https://www.crowtherlab.com/>) team at ETH Zürich to evaluate where trees would naturally exist.

"If a place should naturally only have one tree per hectare, that's the level you should be restoring. If the place should be a full forest, that's the level you should be restoring," Crowther said.



The "Corridors for Life" reforestation project in Brazil has restored connectivity to forest fragments in the Atlantic Forest. Photo by IPÊ (Instituto de Pesquisas Ecológicas) via WeForest.

What is the time frame?

Restoration takes time, and it can be many years before a project reaches its goal. So an important question to ask is: how long has this organization or project been around and is there a long-term commitment toward success?

"Our criteria are about whether we can make a meaningful difference," Chalmers said. "For instance, can we stay there for 10 years? Because that is often what it takes, or more."

What kinds of trees will be planted?

Planting a mix of species and prioritizing native vegetation is crucial to the success of most projects. But choosing which species to plant depends on the objectives of the project and the conditions of the site.

Reforestation programs that use single-species tree plantations over native species "can generate negative consequences for biodiversity and carbon storage, threaten food and land security, and exacerbate social inequities" Chazdon and Brancalion write.

One example is in South Africa, where exotic Australian acacias were planted for timber and to stabilize sand dunes. The acacias invaded the natural heathlands and grasslands and lowered the water table. Now, the country spends millions of dollars per year to clear the trees.

Some projects allow for a low percentage of exotic or non-native trees to be used as sources of income through non-timber forest products such as fruit, nuts or dyes. The use of exotics can be controversial, so when they are used it is important to ask why and to be sure the exotic species are not invasive and will not invade and outcompete native species.

Where are the seedlings produced?

Another thing to consider is where the trees will come from. Often, commercial nurseries grow horticultural plants, and obtaining high-quality native seedlings can be difficult. Does the project use *local seedling nurseries* (owned and managed locally) that can provide a reliable supply of trees as well as another diverse source of work and livelihood?

"If saplings are to be planted, an in-house nursery must be built or an appropriately accredited nursery selected for their production," the Ten Golden Rules paper says. "If such infrastructure and expertise are not available locally at the start of the project, it is important to include them in project planning."



A seedling nursery in Tanzania. Photo courtesy of WeForest.

Will there be follow-up on the project? Monitoring for success?

We assessed whether or not projects disclosed their methods of *follow-up*, including monitoring, measuring survival rate, or scaling up the project. A tree does no good if it doesn't survive, so at minimum, projects should report survival rates.

Monitoring is more involved, and addresses the questions: Was restoration successful? Did the activities achieve the ecological, social and economic goals?

According to the FLR framework, monitoring can fall into a few categories. Implementation monitoring asks if the project was created according to the agreements made by stakeholders; surveillance monitoring observes how ecological properties change through time; effectiveness monitoring assesses whether the project met its goals; and socio-ecological monitoring asks if the actions resulted in social or ecological benefits.

"We've got our own monitoring protocols. We've set everything up ourselves, and our project teams are run by foresters and ecosystem services scientists," Chalmers said of WeForest. "So we then know what we're doing when we talk to other partners and say, look, this Monitoring and Evaluation Framework isn't quite right ... so we help other groups who often are a lot smaller and not well-resourced to do a better job on that side."

Are reports public or available to donors?

Nearly two-thirds of the projects we surveyed did not have public reports available on their websites. In some cases, such as WeForest, this is because these reports are given directly to the funder as a service.

"Because most of the people funding the projects are corporations, it is a corporate sponsorship," Chalmers said. "And that means that a lot of the money comes from marketing budgets and those companies want to feel that they're doing something [and] that it's something special."

Legitimate projects with appropriate follow-up and monitoring in place will have these reports available, but not always publicly. Interested donors can ask for these reports.

Has the cause of deforestation been addressed?

Tree-planting projects can be costly, so resources may be better spent elsewhere if a restored system still remains highly vulnerable to deforestation. This is why a key element of a successful project is identifying and, if possible, eliminating the drivers or causes of deforestation. For instance, if land grabbing is a cause, the restoration project should include locals. When local communities can benefit from forests, they are more likely to protect forests over the long term.

Likewise, in areas where fire is a threat to forests, *fire prevention* methods need to be built into the approach.

These could include protective measures (fences or patrols), thinning of the understory and building fire breaks. In the Amazon, where fires burn slowly, even small breaks in the vegetation and leaf litter, in some cases as small as a leafcutter ant trail, can prevent a fire from spreading.

Who is paying? Is there enough money to do the job well?

Restoring a forest is much more than putting a tree into the ground. Effective long-term monitoring, protection and maintenance are costly, so a successful project should have a sustainable funding model, one that pays workers an equitable wage.

Funding for reforestation projects can come from individual donors, local governments, overseas governments, the private sector, or self-funding initiatives. The most common funding source among projects we surveyed (134 out of 350) is individual donations. Eighty-one projects are funded through a combination of sources, and 49 are self-funded (such as Ecosia and TreeClicks), with governments and private sector funding following.

A selection of tree planting projects that are funded by donations in tropical mountain forests that have a known location and community participation. Find available project details on reforestation.app (<https://reforestation.app>)

speak to the project's image and reputation while assessing the scientific literature often reveals a great deal about the results and monitoring capacity.

See our *Conservation Effectiveness: Reforestation and Forest Restoration Database*

(<https://www.conservationeffectiveness.org/datavis/?strategy=13>) for more information on the literature.

Conclusion

"The massive reforestation initiatives currently underway, the upcoming UN Decade on Ecological Restoration (<https://www.decadeonrestoration.org/>) and aspirations for a post-COVID green recovery, have generated unparalleled hope and optimism that forest restoration really can improve global ecology while uplifting local livelihoods," the Ten Golden Rules paper says.

"However, it will only do so if it is based on sound science, guided by indigenous knowledge and local communities, supported by fair governance, and incentivized by long-term funding mechanisms."

This momentum behind tree-planting projects is promising, but poorly planned or managed projects could increase carbon emissions and waste time and resources. Fortunately, we have a wealth of collective knowledge and experience to inform decision-making.

"If you want to soothe your eco-anxiety in a meaningful way, learning about the companies you support is an important first step," Maldonado said (<https://www.euronews.com/living/2021/01/06/how-to-tell-the-difference-between-tree-planting-schemes-and-scams>). "It is important to remember that when restoring the environment, good intentions never weigh out negative consequences; restoring the environment takes time, planning, research and work."

Banner image of staff member of the Kinesi nursery in Tanzania planting seedlings ©WeForest. —

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