

**Categories of Actors involved in Tree Planting by
Multinational Corporations based in France, Switzerland and
the UK**

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3 1 **TITLE: Categories of Actors involved in Tree Planting by Multinational Corporations based in**
4 2 **France, Switzerland and the UK**
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9 4 **Running title: Businesses' Tree Planting Model**
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14 6 **Abstract**
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17 7 An increasing number of businesses is funding tree planting. Several intermediaries intervene
18 8 between the funding company and those planting trees, each playing a specific role. To ensure
19 9 quality tree planting, intervention and leverage points need to be identified. We aim to understand
20 10 the chain between the corporations that finance tree planting and those planting trees. We
21 11 reviewed 61 multinational companies from France, Switzerland and the UK, involved in tree planting,
22 12 and identified the partners with whom they work to attempt to characterise this chain. Our results
23 13 show that there are at least eight different functions starting with the multinational company, then
24 14 financiers, regulators, quality controllers, enablers, project developers, brokers and finally,
25 15 implementers. Most corporations mobilize three to four actors or levels to carry out tree planting.
26 16 The multiplicity of actors is both positive (e.g., quality assurance) and negative (e.g., adds costs).
27 17 Growing pressure for corporations to demonstrate social and environmental responsibility signifies
28 18 that more tree planting is likely. Yet, many challenges exist in this sector which we aim to describe.
29 19 Critical challenges we identify include transparency, equity and quality. In conclusion, this booming
30 20 multilayer sector should be better structured; understanding the actors and their respective roles
31 21 provides a first step in this direction.
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54 23 **Key words**
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56 24 Restoration; reforestation; tree planting; multinational corporations; sustainability; corporate social
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11 4 **Abstract**

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14 6 between the funding company and those planting trees, each playing a specific role. To ensure
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27 19 and their respective roles ~~of each actor~~ provides a first step in this direction.
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53 22 Restoration; reforestation; tree planting; multinational corporations; sustainability; corporate social
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25 Introduction

26 A growing number of corporations is engaging in tree planting (Mansourian and Vallauri 2020; Holl
27 and Brancalion 2022). Several high level political processes, such as the World Economic Forum's
28 "One Trillion Trees" campaign ([1t.org](https://www.1t.org)), the UN Decade on Ecosystem Restoration
29 ([decadeonrestoration.org](https://www.decadeonrestoration.org)), WWF, WCS and Birdlife's "Trillion Trees" joint venture, the recently
30 signed "Forest Investors Club" at the UNFCCC COP in Glasgow, among others, further incentivise
31 these initiatives. Political commitments provide additional framing for many of these tree planting
32 and restoration initiatives, as for example, the Bonn Challenge to restore 350 million ha of forest
33 landscapes by 2030. Globally, it has been estimated that between USD 36 and 49 billion are required
34 per year if the Bonn Challenge Forest Landscape Restoration targets are to be met (FAO and Global
35 Mechanism to the UNCCD 2015). Given the size of the ambitious global targets on forest restoration,
36 financing from the private sector is necessary (Pistorius and Techel 2017; Löfqvist and Ghazoul
37 2019). Indeed, in 2015, the FAO and the UNCCD noted that "Private-sector investors – businesses
38 and individuals – are the key to long-term FLR [forest landscape restoration] finance" (FAO and
39 UNCCD 2015: [xiii](#)). The growing trend towards "Nature-based Solutions" (Cohen-Shacham et al.
40 2016) and ensuring "net-zero" or even "net-positive" impacts, is also leading to greater interest by
41 companies in planting trees.

42 In reality, companies decide to invest in tree planting for numerous reasons, including to offset their
43 carbon emissions, for marketing purposes ("buy one and we'll plant a tree for you") and for greening
44 their image (communications purposes). The potential for carbon sequestration from tree planting
45 has been highlighted by a number of scientists (e.g., Bastin et al. 2019; [Strassburg et al. 2020](#)) further
46 prompting interest by the private sector in this activity to offset their emissions. Other motivations
47 for the private sector to invest in tree planting include increasing customer loyalty, sustain~~ing~~
48 chains, communications, marketing and even team building (McFarland 2015; Mansourian and
49 Vallauri 2019). In the vast majority of cases, companies do not plant trees directly but pay a range of
50 intermediaries to achieve this goal.

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3 51 Our aim through this research was to understand this “corporate-funded tree planting sector” and
4
5 52 the various elements in the chain between the company and the ultimate tree planters in order to
6
7 53 identify leverage points that would help to secure positive social and ecological outcomes of tree
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10 54 planting.

15 56 **Methods**

18 57 *Sample*

21 58 In 2021 we carried out research among the top companies (by revenue) from the UK, Switzerland
22
23 59 and France. We used the Global Fortune 500 list of companies to obtain the names of these large
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25 60 multinational players (Fortune.com). All the companies from those three countries that were listed
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27 61 on the Global Fortune 500 were included in our sample. By using this list of companies, we steered
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30 62 clear of a sectoral or other bias. Our only bias was company size (i.e., they were large enough to
31
32 63 appear on the Global Fortune 500 List). Our sample totalled 61 companies (Table 1): 26 in France, 13
33
34 64 in Switzerland and 22 in the UK. Where relevant, we also explored branch offices and subsidiaries.
35
36 65 We carried out research for these 61 companies to determine whether they planted trees and if yes
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38
39 66 why and with whom. Our research spanned the period 2000 to 2021.

44 68 *Data collection*

47 69 For each company we then carried out an in-depth research including their websites, that of their
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49 70 subsidiaries where relevant, going through their corporate social responsibility (CSR) reports, their
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51 71 annual reports and any other documentation or press release of relevance. Our intention was not to
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53
54 72 assess the quality of any tree planting activity but rather to identify and describe the different actors
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56 73 involved in the chain. Consequently, we explored a broad subset of “reforestation” activities, using
57
58 74 the terms “tree planting”, “restoration”, “reforestation” interchangeably. We used the following
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3 75 search terms: 'plant', 'plantation', 'forest', 'tree', 'reforest*', 'restor*', 'carbon offset'. Searches were
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5 76 carried out in both French and English, and in some cases, in Spanish.
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11 78 *Limitations*
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14 79 This study relied heavily on publicly available information through reports, websites and press
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16 80 releases. ~~Most of the information is qualitative and/or anecdotal so that it was not possible to~~
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18 81 ~~aggregate data in a meaningful format.~~ Language was also a limitation and many branch offices or
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20 82 subsidiaries may have had information available in local languages.
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Or Peer Review

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3 84 [insert Table 1]
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6 85 **Results**
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9 86 A diverse range of actors intervene across ~~at least eight different~~ several categories with different
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11 87 roles and functions ~~intervene~~ between the corporation reporting that they planted trees and those
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13 88 actually planting trees in the field. In rare cases companies pay a local NGO which carries out the
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15 89 tree planting (one level, two actors involved). This tends to happen when tree planting is in the
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17 90 company's own country. For example, BT Group paid the Woodland Trust to carry out tree planting
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19 91 in the UK. In the vast majority of cases, corporations do not fund directly those planting trees.
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21 92 Instead, there are up to eight levels of actors intervening between (and including) the company and
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23 93 those planting trees (see ~~Table 2 and~~ Figure 1). Typically, companies use 3-4 actors. We describe the
24
25 94 role of these different intermediaries and categorise them as: 1. Regulators; 2. ~~Financiers~~; ~~2.~~
26
27 95 ~~Regulators~~; 3. Project developers; 4. ~~Brokers~~; 5. Enablers; ~~6~~3. ~~Quality controllers~~; ~~4.~~ ~~Enablers~~; ~~5.~~
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29 96 ~~Project developers~~; 6. ~~Brokers~~ and 7. Implementers (~~Table 2~~ Figure 1).
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34 97 [insert Figure 1]
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36 98 [~~insert Table 2~~]
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42 100 **Regulators**
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45 101 Although mMost tree planting funded by corporations is voluntary and not subject to any specific
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47 102 rules, in some cases they operate within a regulatory framework, notably when they take place
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49 103 within the carbon market. ~~Although~~ While not all tree planting by companies is for carbon, interest
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51 104 in carbon offsetting, both regulated and voluntary, has grown significantly since the Paris Agreement
52
53 105 in 2015. In these cases, several rules and regulations apply, although many are still under discussion.
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55 106 Actors intervening in this category include public regulators that frame the rules for carbon offsets in
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57 107 the land use and forestry sector and set quotas, but also private actors that respond to a market
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3 108 demand. An example of a private framework is the Gold Standard which was set up in 2003 by
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5 109 international partners (including WWF). Its aim is to ensure the quality of carbon projects that also
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7 110 provide additional benefits aligned with the Sustainable Development Goals (SDGs). A distinction is
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9
10 111 to be made between the voluntary carbon market and the regulated carbon market (e.g., EU
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12 112 emissions trading scheme) which applies to certain sectors such as the aviation or cement industries.
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14 113 Although carbon is not the only benefit that companies can obtain from tree planting, frameworks
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16 114 for biodiversity offsetting and for other benefits are only slowly being developed.
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22 116 **Financiers**

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25 117 Corporations may choose to pool their resources via a fund, such as the Livelihoods Carbon Fund,
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27 118 which helps on the one hand to reduce risks, and on the other, to provide the corporations with
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29 119 professional expertise for advancing their tree planting objectives. In these cases, the fund manager
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31 120 is responsible for defining or more generally, identifying, the projects that the fund will invest in and
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33 121 report back to the various investors. Another option is for the corporation to set up a foundation
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35 122 (e.g., Foundation Veolia) which manages the company's tree planting activities as a charity. In these
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37 123 instances, they may also resort to another level of project developer, or in some cases invest directly
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39 124 in tree planting operations on the ground. For example, the Fondation Yves Rocher supports project
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41 125 implementers directly. The latter mechanism ensures that a company's investments in tree planting
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43 126 are tax exempt. In all cases, the financiers are separate from the main corporation but serve as a
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45 127 channel for its funding.
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51 52 129 **Project developers**

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55 130 The largest share of actors can be found in this category. Project developers refer to those that
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57 131 design a tree planting project. In most cases, they do not actually implement it but depend on local
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59 132 partners to do so, although in some instances they may also act as an implementer (e.g., WWF in
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3 133 some countries). Project developers may co-design a project together with a company if that
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5 134 company has a particular number of demands (e.g., in terms of location, carbon sequestered etc.) or
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8 135 they may have a portfolio of projects that they have developed regardless of the company, and that
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10 136 they can submit to different companies for them to “invest” in (e.g., Eden Reforestation operates in
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12 137 this way). Close collaboration with the corporation during the project development phase can make
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14 138 the project more relevant for the company. Project developers have the responsibility for ensuring
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16 139 that the programme is designed to the highest standards. In designing the project, they are
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18 140 responsible for ensuring local stakeholder consultations, complaints/grievance mechanisms, and
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20 141 more generally, to ensure the robustness of the intervention. In general, as part of the project
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22 142 design, they also include a monitoring plan which is critical to ensure that trees are not only planted
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24 143 but that they survive, grow and provide the benefits intended. The vast majority of project
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26 144 developers we explored provide as a main metric the number of trees planted.
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30 145 Project developers may be either a non-profit or a profit-making company. ~~In designing the project,~~
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32 146 ~~they are responsible for ensuring local stakeholder consultations, complaints/grievance~~
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34 147 ~~mechanisms, and more generally, to ensure the robustness of the intervention.~~
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39 40 149 **Brokers**

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43 150 Brokers act as a link in the chain and facilitate the transaction for a company. They are not just
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45 151 financial brokers, but They also advise them corporations on the selection of a project developer and
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47 152 often add marketing or communications services appreciated by the corporation. channel funding
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49 153 from the company to the project developer. As brokers, they generally do not develop projects
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51 154 (although in some cases, they co-develop them with a project developer or implementer), nor do
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53 155 they play a role in quality control or implementation. They mainly act as a conduit for funding in one
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55 156 direction and reporting back to the corporation in the other direction. ~~Major support that they~~
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57 157 ~~provide for companies is marketing (e.g. Reforest'Action) and communications.~~
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3 158 More generally, brokers facilitate the transaction for a company. This is probably the link with the
4
5 159 largest number of actors. In turn, the large number of brokers explains the growing corporate
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8 160 interest in tree planting, an activity they have promoted during the last decade (e.g., in France). As
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10 161 the sector has become more crowded, to set themselves apart several brokers use technological
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12 162 tools, for example, visualising on an online platform where trees are being planted (e.g., Tree
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14 163 Nation).

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165 **Enablers**

166 Enablers aim to improve the sector by providing those involved in the sector with specific tools and
167 support. For example, All4Trees acts as an umbrella for a group of actors and citizens with the aim to
168 promote high standards in reforestation and agroforestry. Enablers may help to coordinate a group
169 of companies, setting common calls for projects, organising joint events, sometimes providing a label
170 to the funded projects (e.g., 1% for the Planet). Enablers tend to have or develop additional
171 technical and quality requirements, seeking to improve the way tree planting is being carried out.
172 However, they are entirely outside the regulated process and act as standard-bearers. To date, there
173 are few actors in this space.

174

175 **Quality controllers**

176 This category of actors provides a seal of approval against a given formal set of standards (e.g., for
177 carbon credits such as under the Verra or the Gold Standard schemes). In the context of certification
178 schemes, in particular carbon offsetting schemes, they are responsible for checking that the project
179 complies with the given standard. They include verifiers, auditors and certifiers that check
180 compliance with a given set of standards and may or may not as a result issue a compliance
181 certificate. Although there currently do not exist specific schemes for tree planting beyond carbon
182 ones, these are likely to be developed in coming years (and some are currently under development,

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3 183 e.g., by Preferred by Nature, the Botanical Garden Conservation International; and by the Society
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5 184 for Ecological Restoration and WWF Spain). Quality controllers operate within a more regulated
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7 framework as their task is set specifically against recognised standards.
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11 12 13 187 **Implementers**

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16 188 Project implementers are those carrying out the tree planting on the ground. They may be farmers,
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18 189 landowners, community groups, local NGOs or other local groups but also government agencies
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20 190 (e.g., forestry departments). For example, the Kuapa Kokoo Farmers' Union in Ghana works with
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22 191 Swiss company Chocolat Halba. In many instances, implementers appear as the sixth or seventh link
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24 192 in the chain and may receive very limited funding. They may be a foreign NGO working abroad as is
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26 193 the case for example with Planète Urgence which has an office in Madagascar and implements
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28 194 projects locally with funding from corporations. They can also be a government forestry body such
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30 195 as France's National Forest Organisation (ONF) that implements work in Brazil with funding from
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32 196 carmaker Peugeot.

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40 41 42 199 **Discussion**

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45 200 There have been multiple calls for greater funding for forest restoration (FAO and UNCCD 2015) and
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47 201 for private sector engagement (Pistorius and Freiberg 2014; Löfqvist and Ghazoul 2019). In 2015, it
48
49 202 was estimated that over ten private equity impact funds had been set up to invest in landscape
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51 203 restoration projects (FAO and UNCCD 2015). The role of marketing has also been highlighted as
52
53 204 important to better incentivise restoration (Di Sacco et al. 2021). As a growing number of companies
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55 205 are seeking to become carbon neutral or even nature positive, tree planting is an attractive option.
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58 206 Given that our sample highlighted the large number of companies investing in tree planting, and the
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3 207 numerous intermediaries involved in this long chain between investors and implementers, one can
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5 208 question whether the need is for more funding or instead, for better use of those funds, or both.

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8 209 There are also growing critics of this approach (e.g., Allied Offsets 2023).

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12 211 The proliferation of intermediaries is a reflection of the interest in tree planting by businesses and
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14 212 has spawned a multiplication of initiatives. Large multinational corporations, but also smaller ones,
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16 213 public entities and individual citizens, are increasingly financing tree planting, with major players
17
18 214 listed on the Global Fortune 500 announcing significant tree planting targets (many new targets are
19
20 215 now being set in billions or trillions of trees!). ~~Exposing the various actors involved in the chain~~
21
22 ~~between corporations investing in tree planting and those actually carrying out the operations~~
23 216 ~~highlights the complexity and multi-tiered nature of the process. Similarly to other sectors (e.g., the~~
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25 217 ~~energy sector – see Pinilla-De la Cruz et al. 2021), the partnerships in this area may be characterised~~
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27 218 ~~by their complexity and multi-tiered nature. Exposing the various actors involved in the chain~~
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29 219 ~~between corporations investing in tree planting and those actually carrying out the operations is a~~
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31 220 ~~first step to improve impact.~~
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36
37 223 In light of the numerous intermediaries between the company and those planting trees, several
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39 224 questions remain open and need further investigation. We discuss these briefly here in the context
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41 225 of other research, with the hope to open up a healthy debate on how best to increase efficiency of
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43 226 this sector. We focus specifically on governance questions related to transparency and equity and
44
45 227 also discuss the broader challenges of a project's quality and associated communications.
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52 229 ***Transparency: How transparent is the sector?***

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55 230 We found that there ~~is-are~~ generally limited data being provided on websites or in CSR reports
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57 231 concerning tree planting operations. It is difficult to obtain precise information, ~~on operations,~~
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59 232 beyond a set number of trees planted.
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233 Transparency has been identified as a challenge in reforestation schemes more generally (Lazos-
234 Chavero et al. 2016). In Ghana, Kumeh et al. (2019) found that local stakeholders in five districts had
235 little information on funding mechanisms for plantations in the country. A similar challenge has been
236 identified with funding for the related scheme, REDD+ (reducing emissions from deforestation,
237 forest degradation and the role of conservation, sustainable management of forests and
238 enhancement of forest carbon stocks) more broadly (Montoya-Zumaeta et al. 2021).

239 The multiplicity of layers and actors involved spreads both the responsibility and the risks. Through
240 these diverse intermediaries, companies -delegate the responsibility which places some distance
241 between them and the tree planting activities. Furthermore, different ideologies by different
242 intermediaries affect the advice they provide corporations (Davidson, 2011).

243 Corporations funding tree plantings should improve data and transparency. Given the powerful tool
244 that is tree planting and its long term impacts on nature and people, much more extensive information
245 should be available. However, given the multiple layers we find between corporations and those
246 planting trees, in fact, improved data and transparency This is specifically in the hands of
247 intermediaries that should provide more complex information about the proposed projects, including
248 the species, the area, the local context, people involved etc. Such data is-are important as tree planting
249 can have both positive and negative long term impacts on local people and biodiversity. It is important
250 to promote the positive benefits and to prevent any negative ones.

251

252 ***Equity: How much funding is reaching the ground?***

253 Since tree planting is outside of corporations' fields of expertise, they have to rely on intermediaries
254 (brokers, developers, verifiers...). As a result, transaction costs increase and the more levels are
255 involved, the greater the costs, with a lesser share of funding reaching the field. With available
256 information, it is impossible to estimate how much of the company's initial investment actually
257 reaches the ground (Allied Offsets 2023).

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3 258 Other research on forest restoration (not specifically about corporate-funded tree planting) suggests
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5 259 that local communities may not always benefit when international players engage in forest
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7 260 operations such as tree planting (Fairhead et al. 2014). Frequently, those living in the landscape
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9 261 provide labour for the tree planting, and may also have an opportunity cost if land that they may
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11 262 have used to graze cattle or to plant subsistence crops is instead allocated to tree planting paid for
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13 263 by a distant investor (Fairhead et al. 2012; Scheidel and Work 2018; Holl and Brancalion 2020; Holl
14
15 264 and Brancalion 2022).

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19 265 This gives rise to questions of equity and the fair distribution of the money spent by the company
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21 266 along the tree planting chain of actors. Although this issue may be easily addressed in domestic
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23 267 projects (or projects in similar cost zones), the question is more complex for international North-
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25 268 South projects.

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29 269 Corporations funding tree planting should consider carefully how much funding is allocated to the
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31 270 different activities, guaranteeing a reasonable share of funds are used for field activities (over 50%),
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33 271 and that each actor of the chain guarantees cost-effectiveness of the whole project.

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36 272 ***Quality: How is quality control managed?***

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39 273 Companies frequently report only a figure that represents numbers of trees planted. Although our
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41 274 purpose was not to evaluate the quality of the plantations by field assessment, we found little
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43 275 comprehensive information that explains the extent to which corporate-funded tree planting
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45 276 endeavours lead to significant improvements on the ground (quality, at scale) – in either forest
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47 277 cover, forest quality, biodiversity or social conditions.

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51 278 The number of trees planted- does not effectively represent the multi-layered nature of the forest
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53 279 restoration process. It also represents a missed opportunity to highlight the multiple impacts and
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55 280 benefits that tree planting can provide (Mansourian et al. 2017). Yet, ultimately planting trees can
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57 281 provide many positive outcomes if carried out properly, using the right species, the right tools, on
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3 282 the right land and involving the right people (Mansourian et al. 2017; di Sacco et al. 2021; Holl and
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5 283 Brancalion 2022).

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8 284 As long as the funder, the corporations, are not in a position (expertise, available and credible
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10 285 standards) to ask for more relevant quality indicators than a single figure of x trees having been
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12 286 planted, there is no or minimal incentive to improve this quality control. Planting trees is just the
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14 287 start of the journey to forest recovery. Reaching that long term objective requires the survival of the
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16 288 trees, which is frequently overlooked.

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20 289 Corporations funding tree planting should require high quality projects from brokers and developers
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22 290 with whom they work. Different factors have an influence on the long-term quality and positive
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24 291 impact of tree planting, among which are: 1) the need to embed tree planting in a long-term
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26 292 strategy, by implementers, intermediaries but also by funding companies, when possible ([Brancalion](#)
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28 293 [and Holl 2020](#)); 2) The governance of the project : who has access to which information? Who is
29
30 294 involved in decision making? Which environmental and social safeguarding mechanisms are in
31
32 295 place? ([Mansourian 2017](#)).

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36 296 Corporations funding tree planting should prefer multipurpose forest restoration ~~versus-to~~ tree
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38 297 planting. Restoring a forest is a complex, multi-layer, multi-objective, multi-year and multi-actor
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40 298 process. There is a role for the corporate sector to contribute to this and ~~their-its~~ current tree planting
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42 299 efforts could be channelled towards more comprehensive and environmentally beneficial initiatives
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44 300 such as forest landscape restoration for example which seeks explicitly to improve both ecological
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46 301 functionality and human wellbeing.

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50 302 ***Communications: ~~When quality projects meet efficient story-telling~~ How to reconcile quality and***
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52 303 ***efficient story-telling?***

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56 304 Current Simple-messages employed however, may also convey a simplistic approach to what remains
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58 305 a complex matter: re-creating ecosystems that have been destroyed. Because of the global reach that
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306 large enterprises have, and their clout, it is an opportunity to use this ability to convey more subtlety
307 in the 'tree planting message'.

308 ~~Many companies promote tree planting through their communications and marketing campaigns.~~
309 ~~These are crucial to raising awareness about the importance of tree planting.~~

310 Indeed, tree planting presents an opportunity to contribute to many sustainable development goals,
311 to the Paris Agreement and for corporations to showcase their efforts in this direction. Forests
312 contribute to improving soils and therefore to food production (SDGs 1 and 2), they improve water
313 quality (SDG 6), they contribute to mitigating and adapting to climate change (SDG 13), and they
314 support life on earth (SDG 15). The approaches selected for tree planting can further contribute to
315 SDGs 5 (gender equality), 8 (economic growth for all), 10 (reduce inequality), 16 (support effective
316 institutions) and 17 (partnerships). These linkages should form the basis of communications.

317 ~~Simple messages however, may also convey a simplistic approach to what remains a complex matter:~~
318 ~~re-creating ecosystems that have been destroyed. Because of the global reach that large enterprises~~
319 ~~have, and their clout, it is an opportunity to use this ability to convey more subtlety in the 'tree~~
320 ~~planting message'.~~

321 Corporations funding tree planting should manage expectations to better tell smart stories.
322 Expectations should be managed at many levels: by companies, but also by their clients, the media
323 and local communities where tree planting occurs. Tree planting can achieve many things, but also
324 has its limitations and these need to be acknowledged. Transparency is essential.

325

326 **Conclusion**

327 Restoring forests is a global priority and the private sector has a role to play in this area.

328 Multinational corporations are actively engaged in tree planting and wWe were surprised to find the
329 extent to which Fortune 500 companies are engaged in finance tree planting. However, there

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3 330 remains a significant gap between tree planting activities and the restoration of forest ecosystems
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5 331 which is a complex process. During the last decade, corporations have increased their commitments
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7 332 to global environmental and developmental priorities (e.g., Sustainable Development Goals, Science-
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9 333 based Targets Initiative, Global Compact etc.) in line with their corporate social responsibility,
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11 334 through funding tree planting projects. Many of these projects have been criticised for their lack of
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13 335 social and ecological impacts or sustainability. Today ~~they corporations~~ should ~~orientate~~ direct their
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15 336 fundings towards efficient forest restoration projects, i.e., including social, ~~biodiversity~~ ecological
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17 337 and long-term benefits. Tree planting in and of itself does not achieve any of the global priorities
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19 338 intended by corporations, unless it is carried out in a targeted, inclusive, scientifically-grounded,
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21 339 socially and ecologically responsible fashion. Since multinational corporations work through a
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28 341 ~~Our research highlights the~~ complex web of actors ~~involved and necessary~~ to develop such projects,
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30 342 they can influence this 'tree planting sector' by requesting better projects. To do this, they need to
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32 343 better understand the complexity of a) the sector (i.e., number of actors, roles, layers), b) tree
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34 344 planting (i.e., not all tree planting is equal). The large number of actors in this space is both good and
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36
37 345 bad news. On the one hand, it responds to the urgent need to restore our planet's forests. On the
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39 346 other hand, however, this newly emerging sector currently operates in a very loose and unregulated
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41 347 manner, with high risk for poor practices.
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46 349 We highlight the urgent need to fine-tune processes so as to better structure the sector. Caution is
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48 350 needed as to how these vast amounts of funding are channelled to the ground, via which
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50 351 intermediaries, with what purpose and using which quality control measures. A more structured
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52 352 approach can ultimately help corporations determine clear objectives for their tree planting
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54 353 activities that can be better aligned with the SDGs and other global priorities. At the same time, with
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56 354 better information about the sector, corporations can also be more selective and demanding when
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58 355 engaging in partnerships with the diversity of intermediaries operating in this space. Finally, armed
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3 356 with this information, corporations can also influence how intermediaries ensure real impacts
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5 357 beyond just the number of trees planted. Ultimately, a better understanding of the roles of each
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7 358 actor in the tree planting sector helps to provide guidance for companies seeking to engage in tree
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10 359 planting.
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15 361 **Acknowledgments**

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18 362 We would like to thank Bertrand Dubois for producing the graphics.
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429 **Table 1:** Corporations from France, Switzerland and the UK in the 2021 Global Fortune 500 list. The
 430 only company for which we did not find evidence of tree planting is in **bold (Legal & General Group)**

Sector	Head office		
	FR	CH	UK
Automobile	Renault	-	-
Banking & financial services	BNP Paribas Crédit Agricole Société Générale Groupe BPCE	Credit Suisse Group UBS Group	HSBC Barclays Prudential plc Phoenix group Holdings Legal & General Group Lloyds Banking Group
Food & retail	Danone Carrefour	Nestlé Coop Group Migros Group	Compass Group Tesco J. Sainsbury Unilever
Beauty & cosmetics	L'Oréal Christian Dior	-	-
Commodities & energy	TotalEnergies Electricité de France Engie	Glencore	BP Rio Tinto Group Centrica Anglo American Linde
Construction	Vinci	LafargeHolcim	-
Defence			BAE Systems
Energy mgt & automation	Schneider Electric		

Insurance & reinsurance	AXA	Zurich Insurance Group Chubb Swiss Re	Aviva
Manufacturing	Saint-Gobain		
Pharmaceutical	Sanofi	Roche Group Novartis	Astra Zeneca GlaxoSmithKline
Postal services	La Poste	-	-
Retailer and Real estate	Finatis ELO Group	-	-
Technology	-	ABB	-
Construction	Bouygues	-	-
Telecommunications	Orange	-	Vodafone Group BT Group
Tobacco	-	-	British American Tobacco
Transport & mobility	SNCF Mobilités CMA CGM	-	
Transport, communications & energy	Financière de l'Odet		
Water, waste & energy	Véolia Environnement	-	-
Total sample size	26	13	22
Percent of total (in each country) that plant trees	100%	100%	98%

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434 **Table 2: Levels, categories and sub-categories of actors as well as their functions in the tree**
 435 **planting chain**

Level	Category of actor	Sub-category/ department	Functions	Examples
1	Funding company	Main office Branch office Subsidiary CEO CSR department Communications department Marketing department	Financing Reporting to customers or shareholders Communications Marketing	Most corporations
2	Regulator	National legislator International commitments Offsetting schemes Forest certification schemes	Frames the rules for project (e.g. for carbon offsetting) Sets standards	EU carbon market Gold Standard VCS-VERRA
3	Financier	Foundation Fund	Pools resources Dispenses funding Reports to funders	Livelihood Funds

4	Enabler	Technical platform Project facilitator	Technical facilitator Provides technical and organizational support to other intermediaries Provides tools and data	1% pour la planète All4Trees
5	Broker	NGO Social company For-profit company Marketing expert	Facilitates contacts between a funder and a project Co-develops projects Promotes marketing Advertises project & company	Tree Nation Reforest'Action Earthly
6	Project developer	Forest organization NGO Social Company For-profit company	Designs projects Reports on projects	South-Pole Woodland Trust
7	Quality controller	Certifier Auditor Verifier	Verifies projects Carries out audits	South-Pole Verra Gold Standard
8	Implementer	Local NGO	Carries out work on	WWF

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		International NGO	the ground	Coeur de Forêt
		Forestry department	Carries out tree	ONF in France
		Forest and land owners	planting	-
		Local community	Monitors and reports	-
			back to donor	

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438 **Figure 1**

Sphere of influence	Roles	Main functions	Examples
CORPORATE	Funder	<ul style="list-style-type: none"> • Commissions tree planting • Marketing • Communications 	→ Most corporations
	Shareholder	<ul style="list-style-type: none"> • Decides share dedicated to CSR activities 	
	Customer	<ul style="list-style-type: none"> • Buys products sold by the company • Target of CSR communication 	→ « Buy a product we'll plant a tree for you » campaigns
SUPPORT PROVIDER	Enabler	<ul style="list-style-type: none"> • Facilitates connections and calls for projects • Develops market and corporate interest 	→ 1% for the Planet
	Regulator	<ul style="list-style-type: none"> • Sets laws • Sets standards • Frames sector/market • Ensures compliance 	→ EU carbon market → Gold Standard, VCS-VERRA
	Financier	<ul style="list-style-type: none"> • Raises and pools funding • Distributes funding 	→ Livelihood Funds
	Broker	<ul style="list-style-type: none"> • Sells projects to companies (links up funding sources and project needs) • Provides marketing & communications 	→ Earthly → Reforest'Action
TECHNICAL	Project Developer	<ul style="list-style-type: none"> • Designs projects (technical, financial) • Develops safeguards, rules and monitoring tools 	→ South-Pole → Woodland Trust → WWF
	Quality controller	<ul style="list-style-type: none"> • Verifies compliance with standards (e.g. for carbon) • Audits projects against standards 	→ Livelihood Funds
	Implementer	<ul style="list-style-type: none"> • Plants and grows trees • Monitors project results 	→ Local communities → Local NGOs → Forest experts → Land owners

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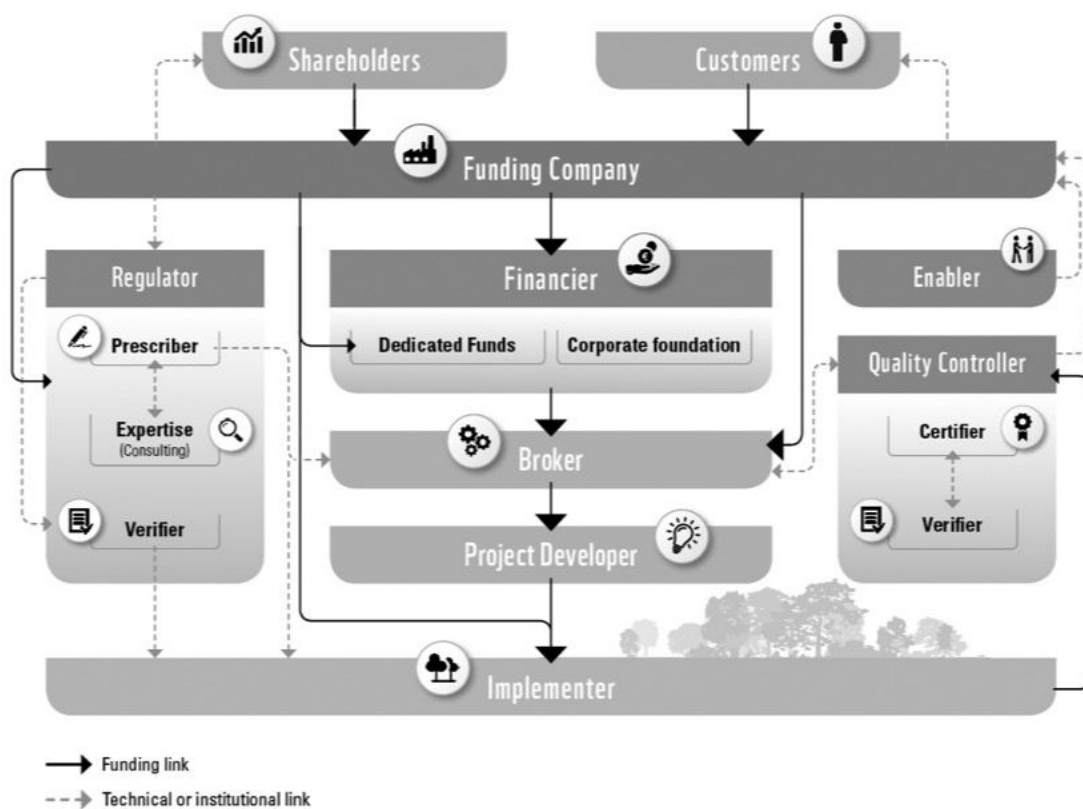
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	Financier	<ul style="list-style-type: none"> • Raises and pools funding • Distributes funding 	→ Livelihood Funds
	Broker	<ul style="list-style-type: none"> • Sells projects to companies (links up funding sources and project needs) • Provides marketing & communications 	→ Earthly → Reforest'Action
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	Quality controller	<ul style="list-style-type: none"> • Verifies compliance with standards (e.g. for carbon) • Audits projects against standards 	→ Livelihood Funds
	Implementer	<ul style="list-style-type: none"> • Plants and grows trees • Monitors project results 	→ Local communities → Local NGOs → Forest experts → Land owners

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442 **Figure 2**



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56 445 **Figure 1: Actors' roles and main functions**
78 446 **Figure 2: A tentative model of tree planting by businesses.** *The links work downwards with funding*
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10 447 *flow from the company, via several intermediaries to the implementers. The links also work upwards,*
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12 448 *with information about tree planting activities flowing back up from implementers, via*
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14 449 *intermediaries, to the company headquarters.*
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