



Planted forests in emerging economies

Best practices for sustainable and responsible investments

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White teak trees or *Gmelina arborea* in Lambakara village, Southeast Sulawesi, Indonesia

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List of abbreviations

| | |
|---------|--|
| AUM | Assets Under Management |
| CDM | Clean Development Mechanism |
| CSR | Corporate Social Responsibility |
| DAC | OECD Development Assistance Committee |
| EFAMA | European Fund and Asset Management Association |
| EIB | European Investment Bank |
| ESG | Environmental, Social and Governance |
| ESRA | The Assessment of Environmental and Social Risk in Loan and Investment Fund Applications |
| FDI | Foreign Direct Investment |
| FGHY | Fast Growing and High Yielding |
| FLEGT | Forest Law Enforcement Governance and Trade |
| FSC | Forest Stewardship Council |
| GSIA | Global Sustainable Investment Alliance (www.gsi-alliance.org) |
| ILO | International Labour Organization |
| IOs | International Organizations |
| IRR | Internal Rate of Return |
| ISEAL | International Social and Environmental Accreditation and Labelling |
| JI | Joint Implementation |
| NGO | Nongovernmental Organization |
| ODA | Official Development Assistance |
| OECD | Organisation for Economic Co-operation and Development |
| PES | Payments for Environmental Services |
| PEFC | Programme for Endorsement of Forest Certification Schemes |
| RBV | Resource-Based View |
| REDD+ | Reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries |
| SIF | Sustainable Investment Forum |
| SRI | Sustainable and Responsible Investment |
| SSIs | Sections, Subsections and Issues |
| TIMOs | Timber Investment Management Organizations |
| T-REITs | Timberland Real Estate Investment Trusts |
| UN | United Nations |
| UNFF | United Nations Forum on Forests |
| US | United States of America |
| USD | United States Dollar |
| VSS | Voluntary Sustainability Standards |
| WRI | World Resources Institute |

Glossary

| Terminology | Definition | Source |
|--|---|----------------------------|
| Corporate social responsibility (CSR) | CSR includes a wide range of voluntary and regulatory instruments, including sustainable and responsible investments. CSR binds companies that voluntarily integrate environmental and social concerns in their business operations and in their interactions with their stakeholders. CSR is expanding out of the corporate sector to include organizations of all types and taking the name of Social Responsibility. | European Commission (2011) |
| Emerging market | Any area that is taking steps toward developing a market-oriented forest sector economy, and has the potential to provide a viable and significant market for forest commodities or forest products. | Investopedia (2016) |
| Environmental, social and governance (ESG) | Nonfinancial issues/risks/factors/indicators included in the investment process to screen investments. | Investopedia (2016) |
| Institutional investors | These are investors such as pension funds, insurance companies and banks that generally have substantial assets and experience in investments, and pool and invest capital on behalf of corporations or private individuals. They also include mutual funds, holding companies, brokerages and other funds. Foundations, endowments and family offices are also very often grouped under and treated in this category. | Davis and Steil (2004) |
| Investment company | Investment companies are firms that invest the funds of investors (e.g. institutional investors such as pension funds) in securities appropriate for their stated investment objectives in return for a management fee. This category also includes investment managers, asset managers, asset management companies, timber investment management organizations (TIMOs) and real estate investment trusts (REITs). | Investopedia (2016) |
| Planted forests | Planted forests are areas of trees established through planting and/or deliberate seeding of native or introduced species. Establishment is either through afforestation on land that had previously not been classified as forest, or by reforestation of land classified as forest, for instance after a fire or storm or following clear-felling. | FAO (2010) |
| Private equity | Private equity derives from investors and funds that invest directly in private companies or conduct buyouts of public companies that results in a delisting of public equity. | Investopedia (2016) |
| Retail investors | Retail investors deal in securities only occasionally, and often deal in only small quantities. They include individual investors, private investors, odd-lot holders and small investors. | Investopedia (2016) |
| SRI infrastructure | This refers to the set of organizations specifically dedicated to advocacy of SRI and provision of SRI services (e.g. standard setters, certification bodies, SRI forums, etc.) | own elaboration |
| SRI tools | SRI tools are a set of common tools (standards, guidelines, codes, etc.) to assure the integration of ESG issues in the investment process. Examples are forest certification schemes, codes of conduct and investment rating systems. | own elaboration |
| Sustainable and responsible investment (SRI) | SRI is a generic term covering any type of investment process that combines investors' financial objectives with their concerns about environmental, social and governance (ESG) issues. SRI is one of the voluntary approaches to promoting CSR. | EUROSIF (2012a) |

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Executive summary

Investments in industrial-scale planted forests have grown exponentially in recent years, and current assets under management total USD 70–80 billion, up from about USD 1 billion in 1980. Once almost exclusively focused on timber production, investments are now rapidly broadening their scope to embrace products and services that include ecosystem services, bioenergy and certified forest products. Planted forests are included into investment portfolios for various reasons, ranging from diversification and risk mitigation strategies – which are reinforced when investments also rely on indicators of sustainable forest management – to attractive rates of return.

Concurrently, the rapid growth of investments in plantations, notably in the tropics, has fostered controversies that are becoming more prominent and critical and that need to be faced by investors. In particular, such rapid growth may incur negative social and environmental impacts of planted forests, such as soil erosion and degradation, water cycle disruption, pests and diseases, and conversion of natural forests. These can result in biodiversity loss or the abuse of local and indigenous communities' rights within productive planted forests, notably plantations with monocultures of exotic species under intensive management practices. These are major reasons why investment companies and fund managers are increasingly interested in using sustainable and responsible investment (SRI) tools (e.g. standards, guidelines, and codes of conduct) that help them ascertain whether planted forests assets are 'safe' or 'risk-free' as far as environmental, social and governance (ESG) issues are concerned. Indeed, more than 30% of the professionally managed assets are today assessed as being managed in a 'sustainable and responsible' manner.

However, a classification system for SRI tools in the field of planted forests still lacks consensus, which in turn implies a knowledge gap in terms of

the SRI tools' capacity to incorporate and foster positive impacts on ESG issues. The present study therefore has two objectives: first, to identify, describe and analyze the tools that have been designed in order to promote SRIs in planted forests; and second, to suggest a framework for the evaluation of SRI tools vis-à-vis their capacity to address ESG issues in relation to investments in planted forests, with a longer-term aim of improving the SRI tools of the future.

An analysis of 121 investments in emerging economies enabled us to identify 339 organizations (i.e. stakeholders involved in the SRI process) and 50 SRI tools. The description and subsequent classification of SRI tools was based on several variables, including:

- type of tool, based on nine categories: investment index, code of conduct, reporting standard, investment guideline, legality benchmark, investment standard, investment rating, bank investment policy, management standard
- specificity of the tools, from those with a broad scope to those focusing on forests (including planted forests) and on planted forests only
- governance, depending on the involvement of businesses, governments, NGOs or academic institutions
- users and where the tools interfere in the investment process, including processing industries, plantation companies, investors, investment companies and asset managers
- level of control induced by the SRI tools to ensure that ESG requirements are met, from control of some initial steps (e.g. getting a signature to a declaration of intents, or agreeing to participate in networks and forums aiming at the better inclusion of ESG issues into business models), to effective compliance with the more stringent certification schemes.

Results indicate that the most common SRI tools used to date are management standards (e.g. the Forest Stewardship Council's standards, called the FSC Forest Certification Scheme), bank investment policies (e.g. ABN AMRO Forest and Plantation Policy) and investment rating systems (e.g. RepRisk). SRI tools usually have a broad sectoral scope. Only a few tools are specific to planted forests. Business-oriented organizations produce and manage about 60% of the SRI tools assessed, followed by NGOs (16%), which in recent years have played a more relevant role in the development of management standards.

The classification of the 50 SRI tools based on the abovementioned set of variables allowed us to define an ESG Reference Document for quality assessment of the SRI tools. Results indicate that the most important issues highlighted in the available SRI tools used to assess the tools' ESG performance are: legality of operations, environmental impact assessment requirements, third-party certification, consideration of tenure rights, impacts on forest degradation, stakeholders' communication and presence of policies related to climate change.

Conversely, issues such as poverty alleviation, minimum percentage of protected areas and prevention of encroachment were found not to be properly addressed or monitored in current SRI tools. This is an important finding because such topics carry significant risks for investments if not properly monitored or controlled for.

The SRI tools with the highest overall performance among the 50 SRI tools analyzed were found to be those of the Forest Stewardship Council (FSC) and Gold Standard: they monitor more issues and ensure greater quality of control (e.g. third-party independent certification) than do other entities. RepRisk, Certified B Corporation, ABN AMRO Forest and Plantation Policy, WWF Responsible Investment Guide, FairForest and the FTSE4Good Index Series were also found to have high performance.

Overall, findings indicate that very few SRI tools are designed in ways that take adequate account of the specific social and environmental sustainability issues relevant to planted forests. In fact, SRI tools focus mainly on issues appropriate to assessing the management of natural forest rather than that of planted forests (e.g. they assess aspects related to illegal logging and high conservation value forests, which are only partially relevant for plantations).

This is an important shortcoming of the current SRI tools and we recommend the development of SRI tools developed specifically for productive plantations. For practitioners, policy makers and local populations, it is indeed important that planted forests are evaluated either through specific SRI tools, or at least with appropriate consideration given to the specific situation of planted forests within existing, broader, SRI tools. In particular, it is critical that key aspects such as the improvement of livelihoods, and the prevention and management of encroachment and conflicts are properly addressed, and indeed thoroughly monitored, in improved future SRI tools.

1 Introduction

The area of land covered with planted forests is growing worldwide. According to FAO (2010), since 1990, planted forests have been increasing mostly in tropical and subtropical countries in Asia and South America by 4.3 million ha/year. Planted forests correspond to 7% of the global forest area and cover an area of 264 million ha.

Today, 30% of all industrial roundwood production is sourced from these planted forests (Jürgensen et al. 2014). Planted forests are expected to overtake natural forests in production to reach 75–100% of industrial timber production by 2050 (Sohngen et al. 1999; Evans and Turnbull 2004; Carle and Holmgren 2008). Warman (2013) convincingly describes how the peak of production from natural forests occurred in 1989 worldwide.

The expansion of planted forests is traditionally linked to the demand for wood fibers and biomass for energy, but nowadays planted forests are also counted on for climate change mitigation and adaptation, e.g. the Clean Development Mechanism (CDM) and Reducing Emissions from Deforestation and Forest Degradation (REDD+) schemes (Scheyvens and Lopez-Casero 2009; Hamilton et al. 2010; Stanton et al. 2010). In the context of declining relative timber production from natural forests and expanding planted forest estates, the estate managers might be credited for their capacity to support forest conservation (Pirard et al. 2016).

Planted forests are increasingly seen as a source of forest products and services able to also deliver environmental, social and economic benefits (Boyle et al. 1999; Bull et al. 2006; Carle and Holmgren 2008; UNEP 2009). However, the negative social and environmental impacts of planted forests (e.g. water cycle disruption, soil erosion and degradation, biodiversity loss, pests and diseases, conversion of natural forests and abuse of local

and indigenous communities) generate serious concerns (Morrison and Bass 1992; Cossalter and Pye-Smith 2003; Bowyer et al. 2005; Van Bodegom et al. 2008; Lawson et al. 2014).

The concerns about the negative impacts of planted forests are all the more critical because:

- retail investors look to increase their market share and are less likely to care about social and environmental impacts than are institutional investors (Simula 2008)
- planted forests are mostly expanding in countries (often tropical and subtropical) characterized by fragile social situations and relatively poor law enforcement compared with conventional areas of investment such as the USA (Voegtlin et al. 2011; Zhanget al. 2014)
- productive planted forests will be prioritized over protective ones and will entail higher social and environmental risks.

Considerable resources are required for the establishment of planted forests; here, upfront investments are critical for their development and largely determine the quality of their design and functioning. The investment aspects therefore play a decisive role and deserve scrutiny. Currently, USD 70–80 billion is invested in timberlands¹ all over the world, with over 70% in the USA alone (Nicklin and Cornwell 2012).

Increasingly, investment companies and funds willing to invest in timberland, and particularly in productive planted forests, adopt so-called sustainable and responsible investment (SRI) strategies (EUROSIF 2010; UNECE/FAO 2014). For example, investors may want to invest only in timber plantations where the

1 Timberlands include both natural and planted forests.

managing company adopts and implements measures targeted at reducing conflicts with the local populations. To implement such a screening strategy, investment companies and fund managers would need to rely on standards, guidelines, codes of conduct or other directive (hereinafter called SRI tools). There are many SRI tools, which may vary in their format and their objectives.

Increasingly, however, they aim to ensure that a particular set of environmental, social and governance (ESG) risks are properly addressed in the investment process. In technical jargon, investment companies and fund managers adopt SRI strategies that make use of SRI tools to guarantee that their investments do not cause negative ESG impacts.

2 Objectives of the study

The concept of sustainable and responsible investment (SRI) is evolving, with new financial service providers developing methods and approaches to include ESG issues in their business-as-usual scenarios. Indeed, the market for sustainable investments increased from USD 13.3 trillion in 2012 to USD 21.4 trillion in 2014, and it represents today more than 30% of professionally managed assets globally (GSIA 2014). Retail and institutional organizations are showing a significant interest in ‘socially responsible,’ ‘green,’ ‘sustainable’ or ‘ethical’ investments, seen as being due to the media and social pressure. In some cases, a socially and environmentally responsible behavior is adopted as a result of new commitments by the shareholders and top managers, typically on a voluntary basis, to reduce risks and to promote more effective marketing strategies.

To prove that investments are ‘ethical,’ ‘green’ or other, the adoption of various standards, guidelines or other directives (SRI tools) has been growing constantly in recent decades (EUROSIF 2014). Yet, such an increase in self-defined ‘sustainable’ investments or in the use of various SRI tools is not matched by any agreed classification system for SRI tools. As a result, it is very difficult for investment companies, funds, and indeed shareholders to really understand how their money is promoting positive environmental and social impacts.

For people making investment decisions and managing assets, it is a challenge to understand the differences between the range of available financial products. At a national level, markets may require differing strategies depending on local investors’ preferences, with associated differing approaches and products to guide the investments (Sievänen et al. 2012).

Thus, taking stock of the increasing interest in investments in planted forest, especially in tropical countries, this study has the following two objectives:

- to describe existing sustainable and responsible investment tools adopted in planted forests in emerging markets and to identify their key characteristics; this is supported by a survey of the most used SRI tools
- to evaluate the performance of SRI tools based on the number of environmental, social and governance (ESG) issues considered, namely the nonfinancial issues and risk indicators included in the investment process.

Our scope and objectives can also be represented as shown in Figure 1.

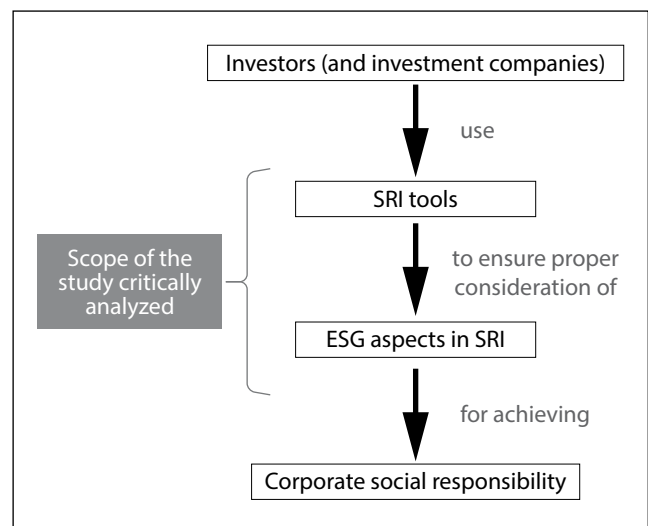


Figure 1. Scope of the research.

3 Research background

3.1 Planted forest trends: An update

The focus of this study is on productive planted forests, where investments are massive. Productive planted forests produce either or both non-timber forest products (rubber) and wood (e.g. timber). Fast growing and high yielding (FGHY) plantations cover an area of 54.3 million ha worldwide, excluding rubber and nonindustrial fuelwood plantations (Indufor 2012). The USA, China and Brazil are the countries with the largest areas of planted forests, each having over 5 million ha of FGHY plantations (Indufor 2012). Productive planted forests are intensively managed in order to generate high financial returns, and thus are usually based on mono-specific and exotic species (e.g. *Pinus* spp. and *Eucalyptus* spp.). Yet, they are also associated with greater negative environmental impacts compared with protective planted forests.

In many developing and emerging countries, the expansion of production and export of wood products in recent years has been made possible by the raw material supplied from plantations (FAO 2014).

3.2 Investments in planted forests

Timberland investments started in the USA in the early 1980s, in relation to the significant growth of planted forests ownership by institutional investors (Rinehart 2010). The ownership of planted forests shifted from strategic investors (forest industry, energy and mining companies as well as soft commodity traders and local landowners) to institutional investors. This phenomenon generated an upsurge of timberland real estate investment trusts (T-REITs) and timberland investment management organizations (TIMOs). In the 1990s, the number of TIMOs and the amount

of their assets under management in the USA increased dramatically from around USD 1 billion to USD 10–12 billion (Zinkhan et al. 1992). In the early 2000s, TIMOs expanded into emerging markets (e.g. Brazil), where forest assets exhibit higher risk–return profiles. In South America and Asia, the area of planted forests has been increasing due to conducive biophysical conditions, low production costs, proximity to emerging markets and acceptable risk levels. Rising land prices in emerging markets can be considered an indicator of this growth.

As of today, 50–70% of timberland investments are still located in the USA (Asen et al. 2012). More than 1000 organizations (e.g. planted forests owners, investors and managers) are involved in the investment process (Indufor 2012). Admittedly, planted forests usually represent no more than 2–3% of the total investment portfolio of institutional investors (Staub-Bisang 2011), but this sector plays an important role in balancing overall risks by many investment funds.

Nowadays, roughly USD 70–80 billion is invested in planted forests, up from less than USD 1 billion in 1980 (FAO 2012; and Annex 1). Institutional investors have played a prominent role in the expansion of tropical planted forests in the past, but completion is growing with more retail investors entering the market (Laaksonen-Craig 2004). The major reason for investing in planted forests is wood production, but the supply of some ecosystem services (e.g. carbon credits) has also been gaining prominence in recent years. Numerous studies have shown the multiple benefits of introducing planted forests into investment portfolios. Relevant benefits (HTRG 2003; Lausti 2004; Scholtens and Spierdijk

2008; Lutz 2009; Toppinen and Zhang 2010; Fu 2012) include:

- low correlation with other asset classes – the rate of return on planted forests investments is not correlated with returns on other financial assets (such as equity, fixed income and commercial real estate), and thus decreases the overall risks in an investment portfolio
- competitive risk-adjusted rates of return – historically, plantation investments have provided appealing average returns in relation to their volatility, especially in emerging countries
- inflation hedging – planted forests are an inflation hedge, being the rate of returns in real terms from forests positively correlated with inflation²
- green and social credentials – investment risks can increasingly be reduced, while brand and reputational values can be increased through certification and other SRI tools that can provide evidence that the forests are managed sustainably.

3.3 Corporate social responsibility

The concept of corporate social responsibility (CSR) was first defined in scientific studies in the 1980s (Carroll 1999). Notwithstanding the name and the initial focus on social aspects, CSR is nowadays increasingly aligned with the topic of sustainability, encompassing governance, environmental and financial aspects (Vidal and Kozak 2008).

In the forest sector, CSR instruments appeared in the early 1990s (Cashore 2002) driven by i) the failure of policy instruments (command and control instruments) in promoting the sustainable management of natural resources; ii) an increased role of civil society in decision making, shifting from ‘government’ to ‘governance’; iii) the internationalization of companies, and the shifting of operations to less developed countries with poor law enforcement and fragile social situations (Heal 2008; Voegtlin et al. 2011; Zhang et al. 2014); iv) growing difficulties of governments in regulating and monitoring transnational corporations and the financial market; and v) the ‘rolling back the frontiers of the state’ with a transfer of environmental and social decisions from the state to the corporate sphere (Heal 2008).

² Wood-based products can be used in a wide variety of sectors (paper, energy, construction, etc.); thus, investments in planted forests can potentially hedge against inflation.

According to the existing literature (Jenkins and Smith 1999; Kurucz et al. 2008; Vidal and Kozak 2008; KPMG 2011a), the major reasons for companies to engage with CSR are to i) increase transparency and minimize reputational risks; ii) reduce costs connected to lawsuits, boycott campaigns, etc.; iii) gain market competitiveness (e.g. avoid loss of market share, enter new markets and obtain a price premium); iv) improve reputation and legitimacy; and v) integrate stakeholders’ interests with the purpose of creating win–win synergistic value activities.

3.4 Sustainable and responsible investments (SRIs)

Sustainable and responsible investments (SRIs) have their roots in the concept of ethical finance that was initially developed in religious spheres (Kinder and Domini 1998; Louche et al. 2012). In the 1930s, religious groups in the USA started to exclude investments in alcohol and tobacco and instead supported pro-poor investments (Annex 2). In recent decades, SRIs have undergone dramatic growth further fueled by the 2007–2008 financial crisis (Becchetti and Fucito 1999; Turcotte and M’Zali 2004; KPMG 2011; Richardson 2013; Benn et al. 2014; EUROSIF 2014; Scholtens 2014).

It is reported that SRIs represent USD 13.6 trillion (GSIA 2012), an estimated 21.8% of all assets under management (AUM). Europe is by far the largest current SRI market and, with the USA and Canada, accounts for 96% of the AUM (KPMG 2013). Institutional investors lead the demand for SRI, representing 94% of the European market (EUROSIF 2014). Both institutional and retail investors are increasingly entering the SRI sector, generating more than 10% annual growth rate (Allianz 2010; VIGEO 2012; EUROSIF 2014). In Europe in 2013, the most common SRI financial products were equities (50%) followed by bonds (40%) (EUROSIF 2014). The demand for SRIs is mostly driven by consumers, and then captured by institutional investors motivated by the reputational risks (Allianz 2010; EUROSIF 2014). At the same time, a growing number of wealthy individuals (or high net worth individuals), who are traditionally very cautious, are also entering the SRI market (EUROSIF 2012b).

From traditional exclusion screening strategies (e.g. no pornography and no weapons), the introduction of ratings and metrics has diversified SRI strategies, moving toward a broader approach aimed at changing the business behavior of companies (Dillenburger et al. 2003).

Despite the large theoretical support behind the assumption ‘the more responsible, the more profitable,’ and some empirical studies revealing a positive correlation between responsibility and financial performances (Feldman et al. 1997; Loucks et al. 2004; UNEP and Mercer 2007; Bouslah et al. 2010), most studies agree that there is no statistical difference between the financial performances of conventional and responsible investment funds (Hamilton et al. 1993; Hoepner and McMillan 2009; Leite and Cortez 2014; Scholtens 2014).

Yet several studies (Figge 2001; Hoepner and McMillan 2009; Cortez et al. 2012; Leite and Cortez 2014; Scholtens 2014) report that the lack of positive correlation between responsibility and profitability is impaired by methodological arguments such as the following:

- SRI is not a straightforward concept and its applications are heterogeneous. Different SRI strategies can be applied and they might have different impacts on returns.
- A clear definition of SRI is missing, with the upper and lower limits being confused with philanthropic investments and conventional ones, respectively.
- The current internationalization process of investment funds could allow SRIs to achieve better portfolio diversification in the medium term. Nowadays, while it is in fact easier to find conventional investments rather than SRIs in emerging economies, this trend is likely to change in the future.
- The financial performance of SRI funds can benefit in the medium term from the inclusion of climate change risks.

With a growing number of tools (e.g. standards, guidelines, codes of conduct) serving the demand for SRIs, a clear classification system is thus needed in order to better investigate potential synergies between responsibility and profitability.

3.5 Strategies for selecting and investing in SRIs

Many different initiatives and SRI forums around the globe promote the integration of environmental, social and governance (ESG) criteria into conventional finance, resulting in confusion about the definition of SRIs (Scholtens 2014). For the purpose of this study, SRIs are defined as “any type of investment process that combines investors’ financial objectives with their concerns about Environmental, Social and Governance (ESG) issues” (EUROSIF 2012a, 8). The choice of EUROSIF’s (2012a) definition is motivated by the fact that the European SRI market is the largest one and that EUROSIF provides constant up-to-date market trend analysis of SRI strategies.

In addition, different organizations adopt different strategies or criteria through which SRIs are defined and selected or excluded from the investment portfolios. At least five organizations are categorizing SRI strategies (Table 1): the European Fund and Asset Management Association (EFAMA), EUROSIF, the United Nations Principle for Responsible Investments (PRI) initiative, the Global Sustainable Investment Alliance (GSIA) and the Association of the Luxembourg Fund Industry (ALFI).

The five classification systems appear to be coherent and identify in total seven SRI strategies. GSIA and EUROSIF use almost identical categorizations. ALFI gives priority to the ESG component in the investment process. This method separates SRI into ESG cross-sectoral, ESG environment, ESG social, ESG governance and Ethics cross-sectoral. The PRI classification system lacks Impact Investing. EFAMA separates SRI strategies into two groups. The first is based on screening and includes Exclusion, Best-in-Class, Thematic approach and Norms-based approach. The second group is based on active ownership and includes Engagement and Voting.

For the purpose of this study, the classification system of EUROSIF is preferred as it best reflects the approaches of all classification systems, and is frequently used in Europe, the largest global market for SRIs. EUROSIF (2012a) defines seven strategies for SRIs (a detailed analysis of the seven strategies is provided in Annex 3):

Table 1. Comparison of classification systems for SRI strategies.

| EUROSIF | GSIA | PRI | EFAMA | ALFI |
|-------------------------|---|--|---|-----------------------------------|
| Exclusion | ESG Negative screening | ESG Negative/Exclusionary screening | Screening: – Negative screening or Exclusion | Negative screening and Ethics |
| Norms-based screening | Norms-based screening | Norms-based screening | | Negative screening and Ethics |
| Best-in-Class selection | ESG Positive screening and Best-in-Class | ESG Positive screening and Best-in-Class | – Norms-based approach | Positive screening |
| Sustainability themed | Sustainability themed | ESG-themed investments | – Best-in-Class – Thematic investments | ESG social and environmental |
| ESG Integration | ESG Integration | Integration of ESG issues | - | ESG cross-sectoral |
| Engagement and Voting | Corporate engagement and shareholder action | Engagement (three types) | Engagement (Voting) | ESG governance |
| Impact Investing | Impact/Community investing | - | - | Social impact, microfinance funds |

Source: adapted from EUROSIF (2012a, 2014) and KPMG (2013).

- Exclusion is an approach that excludes specific investments or classes of investment (e.g. companies, sectors or entire countries) from the investment portfolio. Exclusion is among the oldest and most common strategies and is based on negative screening.
- ESG Integration is the explicit inclusion by asset managers of ESG risks and opportunities into traditional financial analysis and investment decisions based on a systematic process and appropriate research sources.
- Norms-based screening is the screening of investments according to their compliance with international standards and norms.
- Engagement and Voting is based on engagement activities and active ownership through voting of shares and engagement with companies on ESG matters. This is a long-term process, seeking to influence behavior or increase disclosure.
- Best-in-Class is an approach where leading or best-performing investments (within a category or class) are selected or weighted based on ESG criteria.
- Sustainability themed is an investment in themes or assets linked to the implementation of sustainable measures. Thematic funds focus on specific or multiple issues related to environmental and social sustainability, as well as the implementation of measures that foster good governance.
- Impact Investing relates to investments made in companies, organizations and funds with the intention of generating social and environmental

Table 2. Value and growth of SRI strategies in Europe, 2011–2013.

| SRI Strategies | Value (€ Million) | | CAGR ^a |
|-----------------------|-------------------|-----------|-------------------|
| | 2011 | 2013 | |
| Exclusions | 3,584,498 | 6,853,954 | +38.3% |
| ESG Integration | 3,164,066 | 5,232,120 | +28.6% |
| Norms-based screening | 2,132,394 | 3,633,794 | +30.5% |
| Engagement and Voting | 1,762,687 | 3,275,930 | +36.3% |
| Best-in-Class | 283,081 | 353,555 | +11.8% |
| Sustainability themed | 48,046 | 58,961 | +10.8% |
| Impact Investing | 8,750 | 20,269 | +52.2% |

a compound annual growth rate

Source: (EUROSIF 2014).

impacts alongside a financial return. Impact investing can be made in both emerging and developed markets, and targets a range of returns from below-market to the market rate, depending on the circumstances.

Often, several strategies are used in conjunction, so it is not easy to divide current investments into clear-cut classes. Yet, with that caveat in mind, it is clear that all the strategies have fast growing rates (Table 2).

3.6 SRIs in productive planted forests

Although both the number of SRI tools and investments in productive planted forests are increasing (EUROSIF 2010), few studies have investigated their interactions. The most widely adopted strategy in planted forest-related investments is the ‘Sustainability themed’ one (EFAMA 2014; EUROSIF 2014), i.e. a strategy that looks for investments with a focus on specific or multiple issues related to environmental and social sustainability, as well as the implementation of measures that foster good governance in the forest sector. As many as 31 forest-related funds were registered in 2012, accounting for

EUR 3.1 billion of AUM (KPMG 2013). Forest investment funds may also apply other strategies, such as Impact Investing, ESG Integration and Best-in-Class (Table 3).

Current initiatives such as the International Social and Environmental Accreditation and Labelling (ISEAL) Alliance for the definition of relevant indicators, the Committee on Sustainability Assessment for impacts measurement, and the International Centre for Trade and Sustainable Development’s database with the Standards Map project, could collectively increase the knowledge on impact measurement methodologies and indicators (ITC 2011).

Table 3. Role of planted forest investments in SRI strategies.

| Strategy | How does it work? | Applicability to planted forests ^a | Example |
|-----------------------|--|---|--|
| Sustainability themed | Transitioning to more sustainable consumption and production | HIGH: forestry-dedicated funds. Also climate funds | From noncertified to certified forests |
| ESG Integration | Integrating financial analysis with ESG risks and opportunities | MEDIUM: use of due diligence approach. Requires field visit | Use of Forest Footprint Disclosure for the inclusion of risks. Use of FSC certification as a framework for risk management |
| Impact investing | Generating measurable social and environmental impacts (e.g. improved forest management in developing countries, REDD+, CDM and JI projects) | MEDIUM: favored by the advanced level of sustainability measurement in the forest sector (e.g. forest management certification). Also connected to climate change | Generally small projects as microfinance schemes. Initiatives such as the Impact Reporting and Investment Standards (IRIS) or Global Impact Investing Rating Systems (GIIRS) |
| Best-in-Class | Selecting top ESG companies within a sector for placement in portfolio | MEDIUM: for large pulp and paper companies listed on the stock change | Using rating systems to check best-performing pulp and paper mill companies |
| Exclusion | Removing companies or sectors from portfolio | LOW: usually applied at the sector level, mostly refers to controversial issues (weapons, tobacco, gambling, nuclear power, etc.). More likely to be applied for natural forests management and conservation | Removing the forestry sector from the portfolio due to the issue of primary forests conversion. Can be used for planted forests using genetically modified organisms or exotic species |
| Norms-based screening | Using international norms and standards for company selections | LOW: international norms mostly targeting natural forests. Potential applicability with FLEGT. Voluntary standards not yet included | Based on UN Global Compact, any company involved in corruption is excluded from the portfolio |
| Engagement and Voting | Influencing other shareholders on ESG decisions | LOW: engaging through forestry funds boards | Increasing transparency on funds remunerations |

^a The level of applicability expresses the ease of adapting the SRI strategy to investments in planted forests. High: already applied, Medium: possibility of application, Low: rarely applicable.

Source: EFAMA (2014); EUROSIF (2014).

4 Materials and methods

4.1 Description of SRIs

A total of 121 planted forests investments and 339 organizations³ using SRI tools in emerging economies have been inventoried and analyzed. Investments and organizations have been identified through web searches, interviews with key stakeholders and participation at conferences. Following an investment process approach (i.e. an approach that considers the sequence of actions implemented to i) understand the risks, ii) choose the portfolio and iii) evaluate the performance based on investors' preferences), our survey set out to classify into three groups the organizations operating with planted forests investments (Annex 4):

- **Ordinary market players:** organizations operating with planted forests investments, either conventionally or with dedicated SRI strategies; these organizations can relate more (e.g. TIMOs and planted forests companies) or less (e.g. European Investment Bank) specifically to the forest sector
- **Players managing SRI infrastructure:** organizations specifically dedicated to advocacy of SRIs and provision of SRI-related services (e.g. standard setters, certification bodies, forums, etc.)
- **Governments and civil society:** mostly networks, NGOs, associations and intergovernmental organizations having a stake in planted forests investments but not directly participating in the investment process or provision of SRI-related services.

Tools used by the three groups of players have been identified through an analysis of the literature, SRI infrastructure and investment directories, SRI stakeholders' websites, environmental and social

reports and finally with direct interviews by phone or at conferences. The SRI tools eligible for the survey had to meet two requirements:

- being applicable to planted forests (those tools applicable only to natural forests were excluded)
- being already applied in at least one on-going planted forest investment project (for example, the FAO's Voluntary Guidelines for the Responsible Management of Planted Forests was not considered in this review because it was not in use for the investments considered).

As stated above, there is no widely accepted classification system for SRI tools. Lammerts Van Bueren and Blom (1997) and subsequently Holvoet and Muys (2004) introduced some basic elements for a classification, later refined by Masiero and Secco (2013) and described them according to the following variables (please refer to Annex 5 for further methodological details on the classification of SRI tools):

- **Type:** what type of tool is it (e.g. a bank investment policy, or a code of conduct, etc.)?
- **Specificity:** is it a forest-specific or broader scope tool?
- **Governance:** which type of organization develops and manages the tool?
- **Investment process stage:** who uses the tool (e.g. an investor, a plantation company, etc.)?
- **Level of control:** how is the implementation of the instrument controlled?
- **First time to be made public:** when was the SRI tool first made public?
- **Geographical origin:** where was the tool first produced?
- **Geographical application:** where is the tool implemented/implementable?
- **Coordination with other tools:** to what extent is there coordination or cross-referencing with other tools?
- **Market share:** what are the impacted area and/or number of companies using it?

³ For the purpose of the study, an organization is an actor involved in the sustainable and responsible investment process.

4.2 Quality assessment of SRI tools

After the identification and characterization of SRI tools using the abovementioned variables, a quality assessment of how they adopt or consider environmental, social and governance (ESG) criteria was performed. The quality assessment consists of the following steps:

1. **Preparation of an ESG Reference Document** starting from existent planted forests standards and quality assessment frameworks (Lammerts Van Bueren and Blom 1997; Holvoet and Muys 2004; Merger 2008; WWF 2008; Merger et al. 2011; Masiero and Secco 2013; Masiero et al. 2015). The ESG Reference Document refers to a hierarchical framework made of sections, subsections and issues (SSIs). An example is reported in Table 4. A final set of 7 sections, 22 subsections and 155 issues was produced (Annex 6). The first set of SSIs is the one formulated by Holvoet and Muys (2004) and further refined by Masiero and Secco (2013). New SSIs encountered during the analysis of SRIs have been included in the **ESG Reference Document**. An example is the section ‘Climate change and ecosystem services,’ which emerged during the analysis of forest carbon standards. Similar issues were grouped together. For example, the aspect of conservation and avoided conversion of

primary forests and wetlands is frequently found in SRI tools with different wording (e.g. humid forests, protection of wetlands, intact forest landscape, tropical forests, native forests, primary forests, etc.). For each issue, a list of verifiers for field evidence assessment has also been developed.

2. **Gap analysis** of each single SRI tool in comparison with the **ESG Reference Document** in terms of how many issues are considered by the single SRI tool. Gap analysis is a well-known technique for the analysis of forest management standards (Ferrucci 2004; Hickey and Innes 2005; Masiero and Secco 2013).
3. **Assignment of control factors** to account for the level of control of each SRI tool. Four levels of control and, more specifically, eight control strategies have been included.
4. **SRI classification system** that brings together a number of issues addressed by each single SRI tool, the control factors and categorization by type of instrument.

Furthermore, the SSIs with the highest frequency in SRI tools have been identified. In theory and for the purpose of this study, issues occurring in several different SRI tools are expected to be more important than those occurring only in a few SRI tools.

Table 4. Example of a hierarchical framework consisting of a section, subsections, issues and verifiers for the assessment of SRI tools and their ESG criteria.

| Section | Subsections | Issues | Verifiers |
|-----------------------------------|-----------------|---|---|
| Legal and institutional framework | Legislation | Respect of locally and nationally applicable laws and regulations | – Penalties and fees since project starting date – Complaints by stakeholders and NGOs |
| | | Compatibility with international or national agreements signed by the hosting country | ... |
| | | Conformity to labor legislation (e.g. ILO standards) | ... |
| | Illegal logging | ... | ... |
| | Property | ... | ... |

Source: own elaboration.

5 Results

5.1 Planted forests investment process

In the planted forests investment process, the financial flow typically goes from institutional and retail investors to investment companies and involves financial pooling operators such as banks and funds (Figure 2).

Investment companies allocate investments to plantation companies, which are eventually integrated with processing industries. International organizations and research and consultancy

agencies collaborate with both investment companies and plantation and processing companies providing guidelines, research and other services. At the level of plantation companies, a specific advocacy role is carried out by plantation associations (i.e. associations of planted forests owners providing technical and advocacy services, such as the Uganda Timber Growers Association – UTGA). In some cases, plantation associations can also be fully integrated with investors, investment companies and processing industries (e.g. the case of The Brazilian Tree Industry – Ibá). NGOs usually focus more on advocacy and campaigning

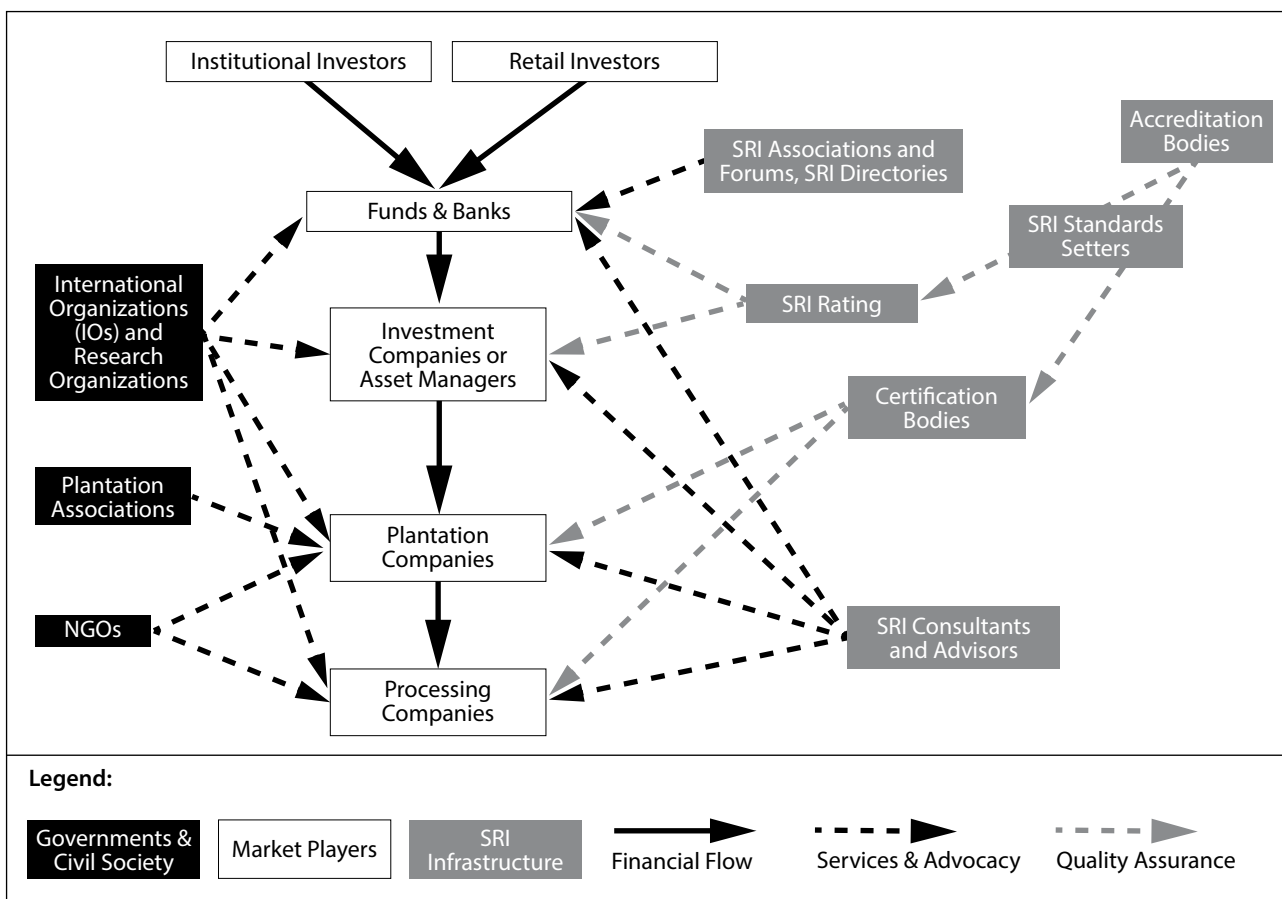


Figure 2. Actors in sustainable and responsible investments in planted forests.

at the level of plantation and processing companies where they are located on the ground, rather than at the investment level.

Concerning SRI infrastructure, accreditation bodies accredit both SRI rating agencies and certification bodies. Certification bodies control the application of standards at the level of plantation companies and processing industries, while SRI rating agencies score the quality of banks, funds and investment companies. SRI standard setters are the developers of rating systems and standards to be controlled by SRI rating agencies and certification bodies. SRI advisors and consultants, together with SRI directories, forums and associations provide advocacy and consultancy services on SRIs.

5.2 SRI tools for the planted forests sector

5.2.1 Type of instruments

A total of 50 SRI tools have been identified (Annex 7 and Annex 8). The most frequent instruments

are management standards (11), followed by bank investment policies (9) and investment ratings (8). The less well-represented tools are codes of conduct and investment indexes. Nine country indicators have also been analyzed. These indicators are useful for comparing the suitability of countries to host planted forest investments.

5.2.2 Specificity and governance

Most instruments have a broad sectoral approach (29) or a forest sector focus (19) and include both planted and natural forests. Management standards are mostly specific for forest and planted forests (Figure 3).

Investment guidelines (e.g. WWF Responsible Investment Guide) and legality benchmarks (e.g. Lacey Act) are mostly forest specific; however, reporting and investment standards all have a broad sectoral approach. Investors and investment companies are the players using the majority of broad-scope SRI tools. This is not surprising since only 1–2% of an investment portfolio is made up of forest assets.

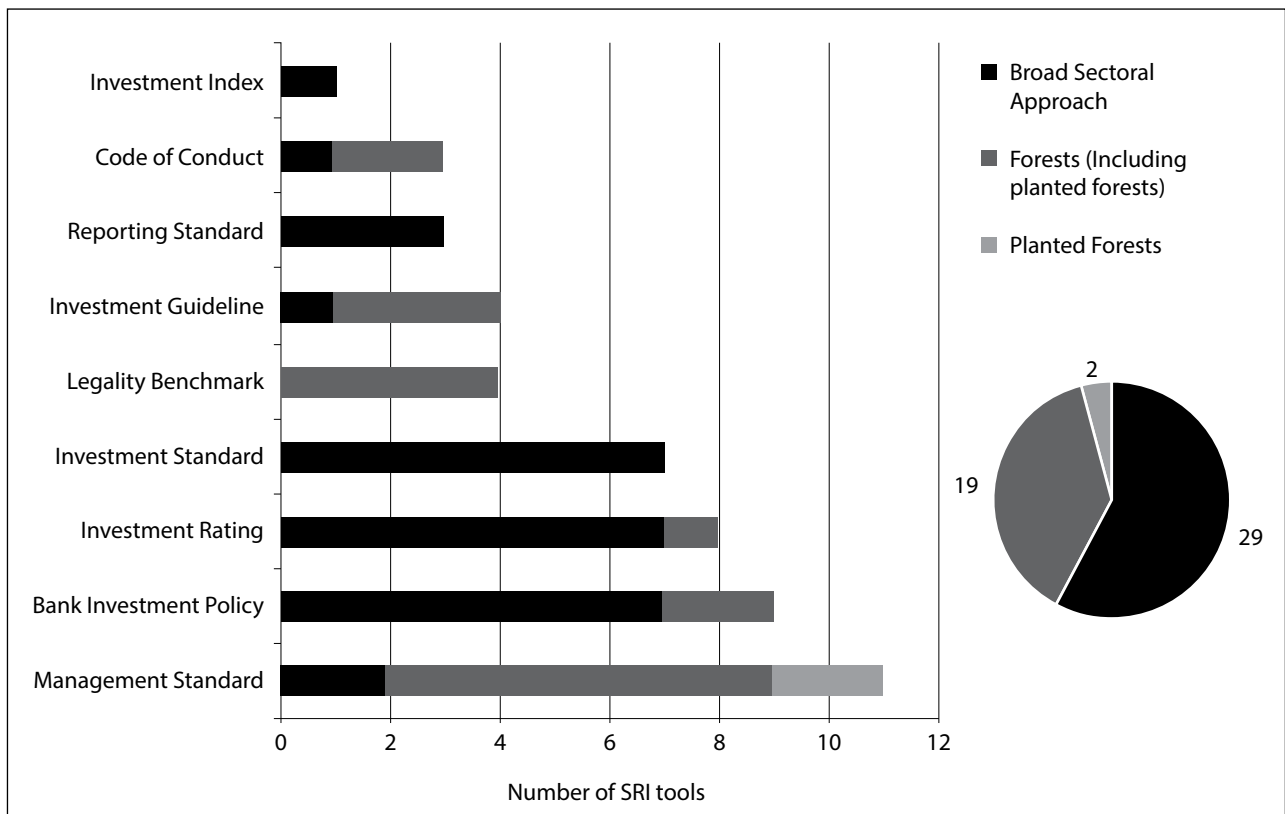


Figure 3. Specificity of SRI tools by type of instrument. The number of codes of conduct is underestimated and only represents a sample.

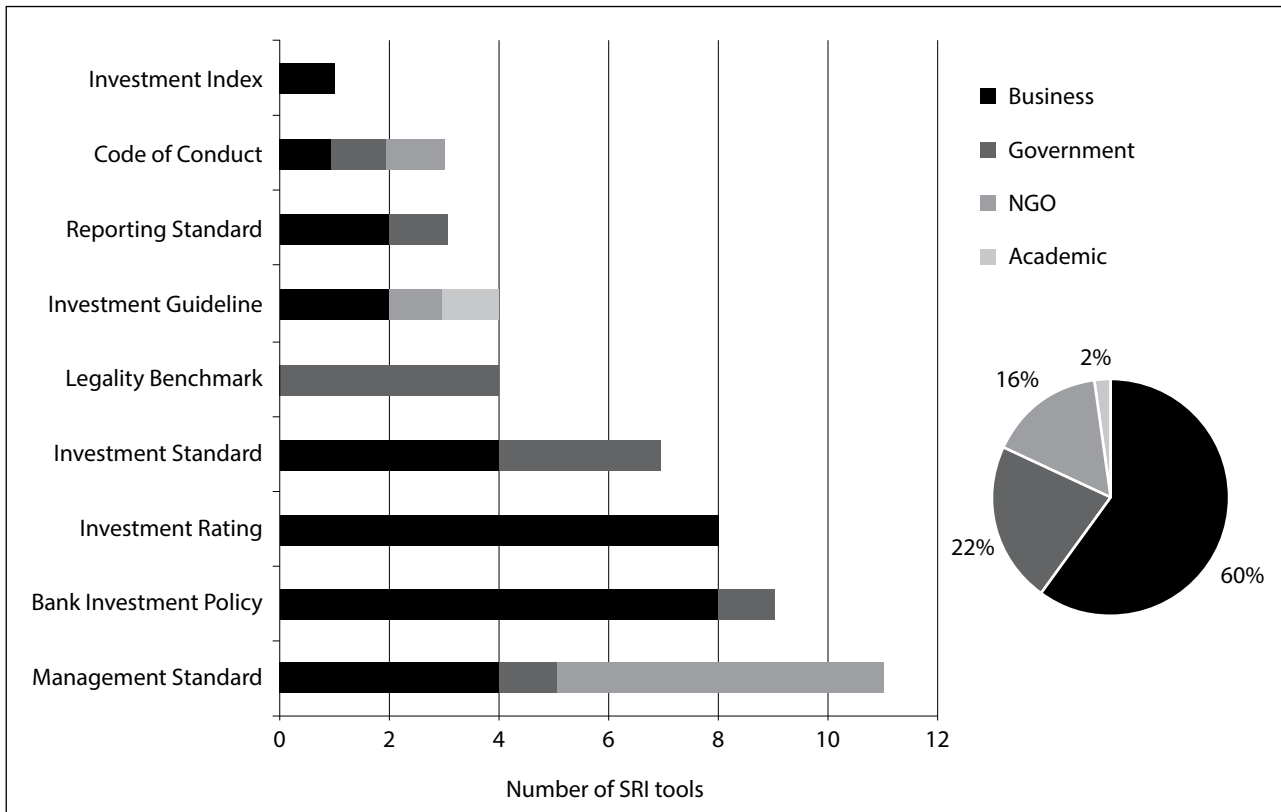


Figure 4. Governance structure of SRI tools by type of instrument.

Only two standards are specific to planted forests: Gold Standard and the Clean Development Mechanism⁴ standard. One interpretation is the absence of a market for tools specific to planted forests investments. For example, FSC certification, one of the most widely used SRI tools for planted forests (even though it was initially created for natural forests), eventually removed criterion 10 for planted forests in 2015. The decision was made by the FSC in order to ensure the same quality of forest management across all types of forests.

Concerning governance (Figure 4), 60% of the instruments are produced and managed by business-oriented organizations, followed by government (22%), NGOs (16%) and academic (only 1 instrument). Although NGOs are actively developing management standards,

codes of conduct and investment guidelines, it is business organizations that predominantly develop and manage investment indexes, bank investment policies and investment rating agencies. Governments are active in developing and managing legality benchmarks and investment standards. Only one instrument, the Ecobanking Project, has a strong academic background.

The role of private, for-profit companies in developing and managing SRI tools is particularly evident for three types of SRI tools: bank investment policies, rating of investments and investment standards. While bank investment policies are obviously drafted by banks themselves as internal procedures to account for ESG impacts, investment standards and investment ratings are evaluation instruments aimed at comparing different investments. Importantly, the lack of NGOs and independent monitoring organizations in the development and evaluation process of SRI tools can generate credibility risks.

⁴ CDM standards are applied to multiple sectors, but also have a specific methodological part dedicated to afforestation/reforestation projects; hence, these standards are categorized as planted forests specific.

5.2.3 Investment process stage and level of control

SRI tools can be classified also in relation to the groups of targeted users. In particular, four categories of users have been identified in the planted forests investment process: investors, investment companies, plantation companies and processing industries (Figure 5).

Investors use the highest number of SRI tools (31), followed by processing industries (24), plantation companies (22) and investment companies (13). Most of the instruments used by investors are bank investment policies, investment ratings and investment standards, while plantation managers concentrate their efforts on management standards. Processing industries use the more diversified types of instruments, while investment companies use a restricted set.

Only five instruments (i.e. the FTSE4Good Index Series, the Global Reporting Initiative, the Global Compact, the SA 8000 and the IFC Performance Standards) are applied across

the four groups of users, from investors to processing industries. The majority of the instruments are either used at the beginning of the investment process (e.g. UN PRI and all the bank investment policies) or at the end of the investment process, either by plantation managers or processing companies (e.g. almost all the management standards).

Concerning coordination between instruments, almost 20% of the SRI tools are stand-alone, with no specific reference to or linkage with other SRI tools. About 50% have at least one connection with other SRI tools, e.g. a bank investment policy that mandates the bank to use only FSC-certified paper or to invest only in FSC-certified forests. The more coordinated SRI tools are the 'WBCSD Sustainable Procurement of Wood and Paper-based Products Guide and Resource Kit' and the 'WWF Responsible Investment Guide,' which are connected respectively to seven and six other SRI tools.

This study also distinguishes among SRI instruments based on the level of control for the verification of ESG impacts: from the lowest

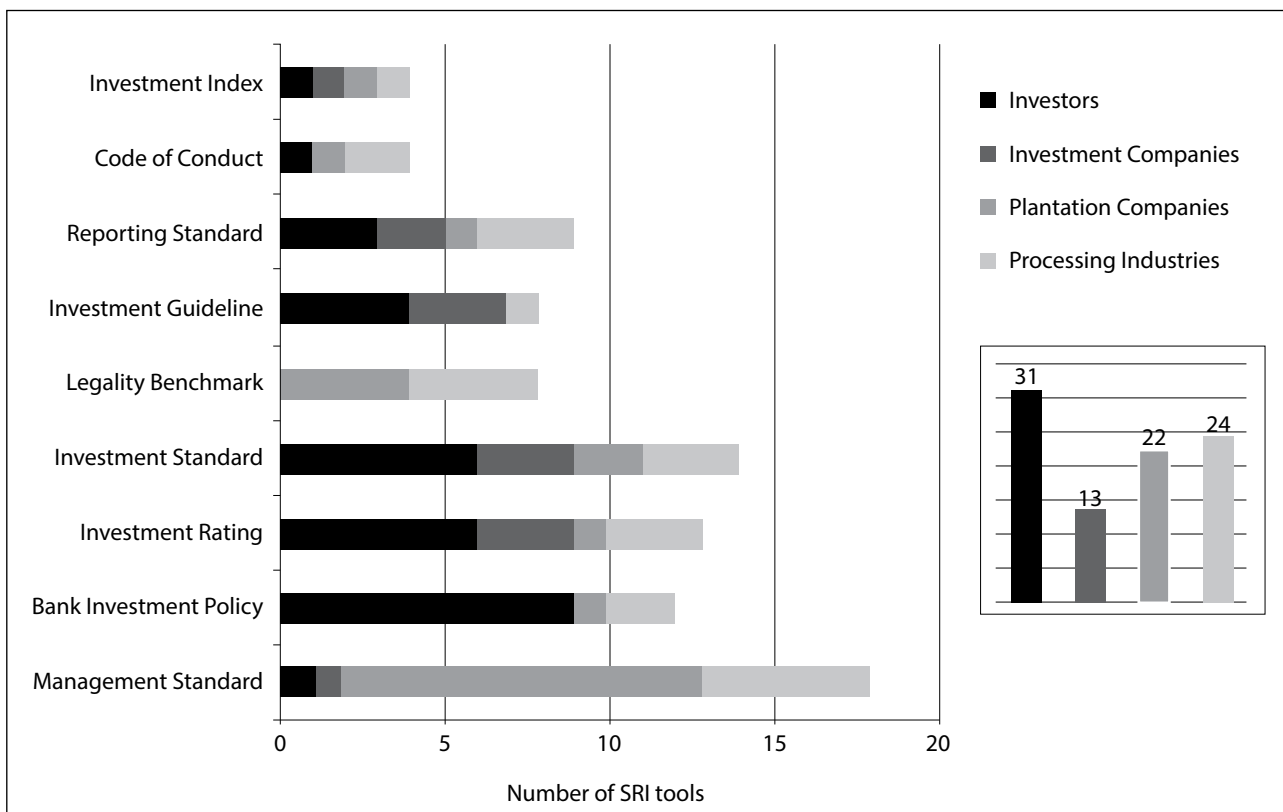


Figure 5. Users of SRI tools by type of instruments.

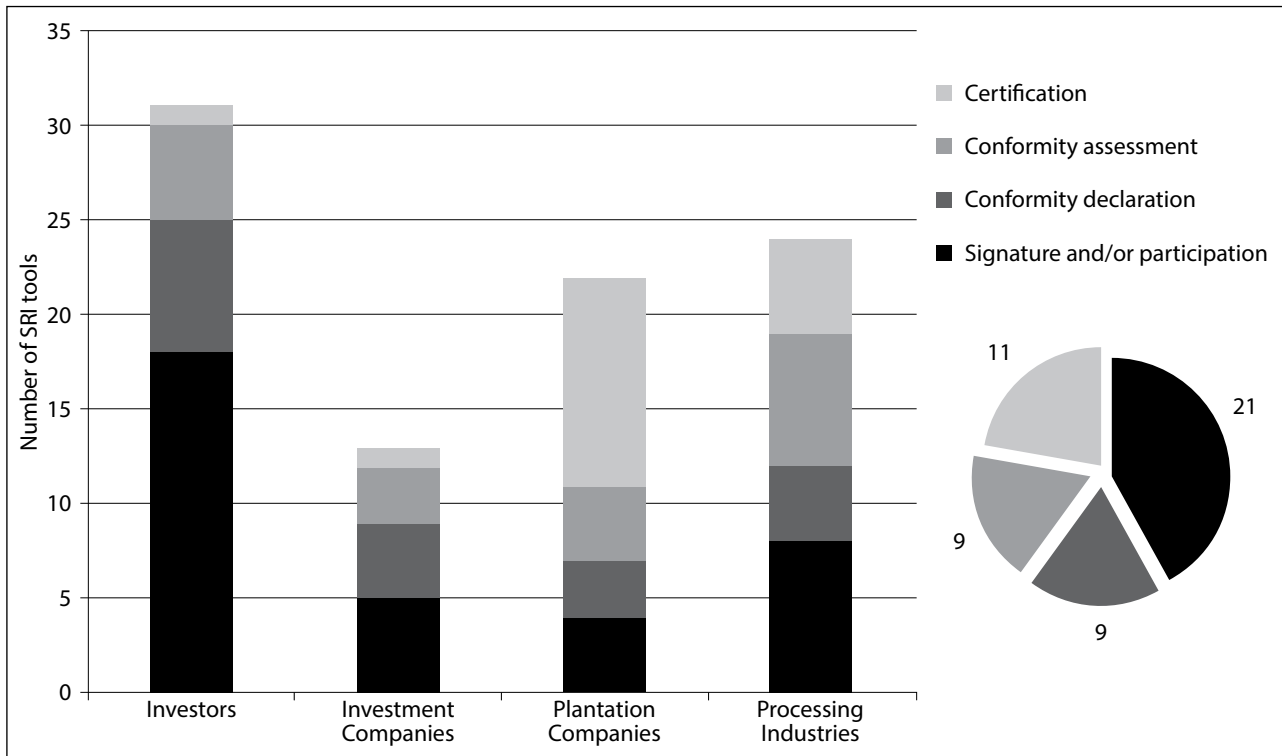


Figure 6. Number of SRI tools and level of control used by stakeholders.

level of control (signature/participation)⁵ to the more complex certifications based on third-party accredited quality control. It appears that most SRI tools used by investors (25 out of 31) have the lowest level of control and only require signature/formal participation commitment to a generic program or at the most a conformity declaration related to a standard (Figure 6).

A similar situation is found with investment companies. In contrast, plantation companies, managers and processing industries use a wide range of SRI tools with a higher level of external control. The highest level of control (conformity assessment) is with certification, as it involves the assessment of the organizations' conformity to standards or guidelines by an external, independent, often accredited control agency. Hence, having a third-party independently accredited certification, means having a certification body that is controlled

by an accreditation body ('the controller of the controller'). This is a common and consolidated feature of systems such as voluntary forest certification: for example, a plantation owner willing to get certification according to FSC standards has to hire an independent certification body that is annually accredited by Accreditation Service International (ASI). This situation is very common also in the institutional and voluntary carbon markets, both under the Clean Development Mechanism of the United Nations and the voluntary standards such as Gold Standard. Certification is also becoming a common quality control system for other commodities such as sugar, coffee, palm oil, etc. (Potts et al. 2014).

Yet, only 21% of the identified SRI tools are based on third-party certification. One interpretation is that the typical standard development process itself is the cause of this low percentage. At the early stage of a standardization process, the number of tools is high and the level of external control is very low. As time goes by, the best performing tools are selected and brought to a higher level of control, also stimulated by competition between tools. This process of positive selection seems to be already mature at the latest stages of the planted forests investment process (processing industries and

⁵ The signature/participation is the official acceptance, endorsement and support, at the high decision levels of an organization, of initiatives such as campaigns, networks and other initiatives requiring signature. Hence, it is a generic assumption of responsibility through a declaration and a written statement. More details are given in Annex 5.

plantation companies), while it is still ongoing at the early stage of the investment process (investors and investment companies). In other words, most management standards used at the plantation and processing levels have had established systems of third-party accredited certification since the early 1990s (e.g. FSC). At the investors' level, only more recently have the first steps toward third-party accredited ratings been made with the launch of the Global Initiative for Sustainable Rating – GISR (GISR 2015). Typical barriers to certification are usually technical barriers (e.g. absence of legal land titles) or financial barriers (e.g. high costs). Both these barriers are rarely found in large planted forests investments.

5.2.4 Other descriptive variables.

From an historical perspective, most of the instruments entered the market in four periods:

- 1992–1997, a first pioneer group entered into force in conjunction with the 1992 Earth Summit (e.g. Domini, FSC, etc.)
- 1998–2006, a second group followed the publication of the Equator Principles, the Global Compact and Principles for Responsible Investments by UN bodies
- 2007–2010, a third group entered the market as a result of the rise in environmental, social and governance demands in the finance sector after the 2007–2009 financial crisis (e.g. ImpactAsset, GIIRS, IRIS, etc.)
- 2010–present, there was an upsurge of legality initiatives connected to the timber sector (e.g. EU Timber Regulation).

Most of the SRI tools have implementing authorities with headquarters in Europe and the USA, suggesting a close geographical link between investors willing to invest responsibly, mostly located in Europe and the USA, and supply of instruments by the market.

5.3 SRI tools quality assessment

5.3.1 Top-scoring issues in SRI tools

The analysis of the 50 SRI tools resulted in the definition of 7 sections, 22 subsections and 155 issues (Annex 9). The sections with the largest number of issues are the ones dedicated to environmental issues (Environment, 34 issues), and to supply chain and traceability (30 issues). A larger number of issues does not mean the

section is more important; it simply means that stakeholders have a more diversified outlook and a less aligned perspective on the section.

Among the top 25 issues, the sections 'Legal and institutional framework' and 'Environment' are the most represented, with 12 and 9 issues, respectively. The section 'Legal and institutional framework' is very recurrent due to the importance of certain aspects, such as the fight against illegal logging, respect of property rights and clarity of land tenure in emerging markets. Such aspects are also usually the common starting point for many management standards willing to prove sustainability beyond legal requirements. The section 'Environment' is very popular due to widely internationally recognized issues such as pollution, deforestation or loss of biodiversity (in the concept of 'High conservation value forests') and the water cycle. The section 'Community and employees' is also well represented in the list of the 25 most important issues, and it includes tenure rights and safety and social impact assessment. In many instances, social indicators make reference to the requirements of the ILO conventions, as also found by Potts et al. (2014).

Conversely, sections with a low occurrence of issues are 'Forest management' and 'Climate change and ecosystem services.' This limited representation is probably because many SRI tools have a broad approach and do not specifically target forests. Only one 'Forest management' issue is represented in the list of the top 25 issues (forest damage due to fire, diseases, etc.) while no 'Climate change and ecosystem services' or 'Governance, disclosure and transparency' issues are in the top 25 list.

Lastly, the use of 'Third-party certification schemes' is the most frequent issue across the 155 identified ones and is found in 37 SRI tools out of the 50 analyzed (Table 5). Respect of laws, Avoidance of illegal logging and High conservation value forest (HCVF) designations are among the most represented issues.

5.3.2 Level of control of issues

Beyond the frequency, the level of control plays a major role in defining the importance of issues. The inclusion of a weighting system (scale 1 to 4) allows the scoring of issues based on the combination of frequency and level of control (Table 6).

Table 5. Top three issues for each section.

| Section | Issue | Rank |
|---------------------------------------|---|------|
| Supply chain and traceability | Third-party certification schemes (e.g. FSC certification) for the production or sourcing of forest risk commodities | 1 |
| | A risk assessment for forest risk commodities used by suppliers | 31 |
| | Action to increase the uptake of sustainably produced materials up and down the organization value (including price premium) | 37 |
| Legal and institutional framework | Respect for locally and nationally applicable laws and regulations | 2 |
| | Conformity to labor and fee legislation (e.g. ILO standards) | 4 |
| | Bribes for concessions | 7 |
| Environment | Environmental impact assessment (including emergencies, hazards and risks) | 3 |
| | Forest areas that contain globally, regionally or nationally significant concentrations of biodiversity (this includes: protected areas, rare or threatened species, endemic species and seasonal concentrations of species) | 5 |
| | The natural water cycle is not disturbed or is restored (includes riparian buffer zones along water bodies) | 9 |
| Community and employees | Forest management not threatening/diminishing resources (including food) or tenure rights of indigenous people | 6 |
| | Operational guidelines and training for health and safety procedures and equipment of forestry workers (including emergency training) | 8 |
| | Social impact assessment | 17 |
| Forest management | Existence of policies, procedures and measures for monitoring and/or prevention of forest damage caused by fire, diseases, pests, wind, water, climate change and infringements (e.g. illegal harvesting and illegal waste dumping) | 20 |
| | Data and maps for the characterization of the forest estate exist (property, social and economic aspects, biophysical aspects) | 62 |
| | Presence of forest management plan (includes Project Design Document) | 63 |
| Governance, disclosure & transparency | Communication between stakeholders is efficient | 28 |
| | Periodic reports on forest management practices and impacts are provided by the forest manager and are publicly accessible | 34 |
| | Existence of an individual or committee responsible for environmental and social issues at board level | 46 |
| Climate change ecosystem services | The company has a carbon emissions reduction and compensation plan through the forest sector | 36 |
| | An organization policy recognizing the role of forests in climate change mitigation exists | 45 |
| | Climate change is affecting the ability of the organization to produce, source or supply commodities that are at risk | 61 |

Source: modified from Brotto (2016).

Respect for laws, environmental impact assessment, third-party certification, tenure rights, forest damage, communication between stakeholders and climate change policy are the top-ranking issues for each section. As previously mentioned, the respect for law is a basic requirement in almost all the SRI tools. All the other most relevant issues are typical of management standards that use third-party certification and are applied at a plantation or processing industries level.

Table 7 reports the low ranking issues in terms of control level. Surprisingly, aspects such as illegalities in transport or trade, planning of pruning and thinning, negative publicity, minimum percentage of protected areas, benefits sharing system, poverty reduction and prevention of encroachment are among the less represented and controlled issues.

Table 6. Top-ranking issues for each section including the level of control.

| Score with control level | Section | Subsection | Issue |
|--------------------------|---|---|---|
| 88 | Legal and institutional framework | Legislation | Respect for locally and nationally applicable laws and regulations |
| 78 | Environment | Environmental impacts | Environmental impact assessment (including emergencies, hazards and risks) |
| 76 | Supply chain and traceability | International sustainability standards | Third-party certification schemes (e.g. FSC certification) for the production or sourcing of forest risk commodities |
| 70 | Community and employees | Local communities and indigenous people | Forest management not threatening/diminishing resources (including food) or tenure rights of indigenous people |
| 57 | Forest management | Health and vitality of forest ecosystem | Existence of policies, procedures and measures for monitoring and/or prevention of forest damage caused by fire, diseases, pests, wind, water, climate change and infringements (e.g. illegal harvesting and illegal waste dumping) |
| 56 | Governance, disclosure and transparency | Stakeholders | Communication between stakeholders is efficient |
| 41 | Climate change ecosystem services | Greenhouse gases | An organization policy recognizing the role of forests in climate change mitigation exists |

Source: modified from Brotto (2016).

Table 7. Low ranking issues for each section including the level of control.

| Score with control level | Sections | Subsections | Issues |
|--------------------------|---|---|--|
| 43 | Legal and institutional framework | Illegal logging | Illegal accounting practices |
| 43 | | | Processing licenses |
| 41 | | | Illegal transport or trade |
| 10 | Forest management | Finance | Existence of economic incentives, subsidies and/or tax exemptions |
| 9 | | Health and vitality of forest ecosystem | Thinning and pruning in planted forests are carefully planned and implemented |
| 9 | | | Preplanning to ensure seed and seedling availability for plantation establishment |
| 8 | Governance, disclosure and transparency | Governance | Organization is not suffering from negative publicity for environmental, social or ethical reasons |
| 8 | | | The organization is monitoring customer satisfaction and integrating customer feedback |
| 7 | | | Disclosure and reporting |
| 7 | Climate change ecosystem services | Greenhouse gases | The organization has not publicly declared it is against the Kyoto Protocol |
| 6 | | | Incentives for life cycle assessment |
| 6 | | Ecosystem services | Biodiversity offsetting |

continued on next page

Table 7. Continued

| Score with control level | Sections | Subsections | Issues |
|--------------------------|-------------------------------|---|---|
| 8 | Environment | Plantation design and natural forests | Protection of World Heritage sites |
| 6 | | | Minimum percentage of project area (e.g. 10%) is protected for biodiversity and ecosystems |
| 3 | | | Noise of processing plant (e.g. mill) in proximity to human settlements |
| 15 | Community and employees | Local communities and indigenous people | Benefit-sharing system should be in place regarding timber, Non Timber Forest Products (NTFPs) and services |
| 6 | | | The project is reducing poverty |
| 3 | | | Prevention of encroachment |
| 2 | Supply chain and traceability | International sustainability standards | Verification of Legal Origin & Verification of Legal Compliance |
| 2 | | | AccountAbility (AA1000) |
| 1 | | | World Heritage Convention (WHC) |

Source: modified from Brotto (2016).

5.3.3 Performance of SRI tools

Concerning the performance of SRI tools (Figure 7), the analysis reveals their different nature. Remarkable differences exist between instruments such as codes of conduct (labeled CC) and management standards (SM).

Investment guidelines have a broad perspective and they cover the greatest number of issues (orange bars, Figure 7), but have no level of control.

Management standards and investment ratings tend to have a narrower approach, with fewer issues covered but with a very high level of control,

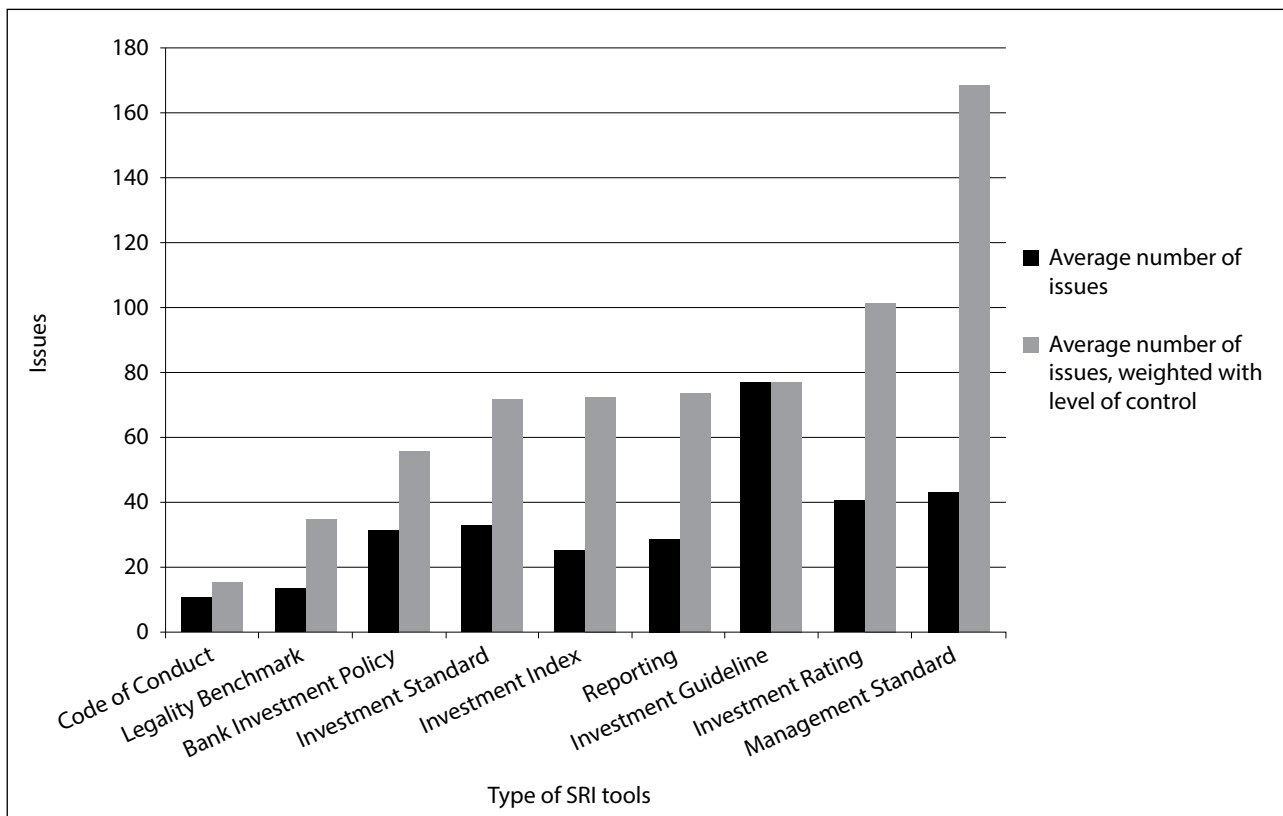


Figure 7. Performance by type of SRI tools based on frequency of issues. In green, the occurrence of the issues is weighted with the level of control.

such as conformity assessment or certification. By contrast, while codes of conduct, legality benchmarks and bank investment policies also tend to cover a restricted number of issues, they have a very low level of control, such as signature/participation or conformity declaration.

The SRI tools with the highest performance for each category are reported in Table 8. The two best bank investment policies are those of ABN AMRO and ING. The ABN AMRO policy is specifically dedicated to natural and planted forests and includes an exclusion list (e.g. no species included in the Convention on International Trade in Endangered Species of Wild Fauna and Flora – CITES).

Gold Standard (SM8 in Column ‘Code,’ Figure 5) and the Forest Stewardship Council (SM3) are the SRI tools with the highest performance among the 50 analyzed (Figure 8). While Gold Standard is a forest carbon standard specifically targeting afforestation/reforestation projects, FSC targets both natural and planted forests. Both standards have a strong NGO background and they have high scores thanks to the third-party independent accredited certification system they are using. The SRI tools covering the majority of issues are investment guidelines such as the PWC Forest Finance Toolkit (IG2) and the WWF Responsible Investments Guide (IG4). Investment guidelines are clearly not made for certification and hence their control level is very low.

Table 8. SRI tools with the highest performance by type.

| Type of SRI tool | Name | Code | Issues covered with level of control | Level of control |
|------------------------|---|------|--------------------------------------|------------------|
| Bank investment policy | Algemene Bank Nederland Amsterdamsche Bank Rotterdamsche Bank (ABN AMRO) Forest & Plantation Policy | IP1 | 105 | 2 |
| | International Netherlands Group (ING) ESR Policy | IP8 | 75 | 1 |
| Code of conduct | Confederation of European Paper Industries (CEPI) – Legal Logging Code of Conduct for the Paper Industry | CC1 | 24 | 1 |
| | Pacto Intersectorial por la madera legal | CC2 | 17 | 1 |
| Investment index | Financial Times Stock Exchange (FTSE4Good) Index Series | II2 | 72 | 3 |
| Investment guideline | World Wide Fund (WWF) Responsible Investment Guide | IG4 | 114 | 1 |
| | PricewaterhouseCoopers (PWC) Forest Finance Toolkit | IG2 | 98 | 1 |
| Investment rating | RepRisk | IR8 | 225 | 3 |
| | Fairforest | IR2 | 138 | 2 |
| Investment standard | Certified B Corporation | SI1 | 162 | 3 |
| | International Finance Corporation (IFC) Performance Standards | SI7 | 102 | 2 |
| Legality benchmark | European Union Forest Law Enforcement, Governance and Trade (EU FLEGT) | LB2 | 53 | 3 |
| | European Union Timber Regulation | LB3 | 49 | 3 |
| Management standard | Gold Standard | SM8 | 336 | 4 |
| | Forest Stewardship Council (FSC) | SM3 | 324 | 4 |
| Reporting | Global Reporting Initiative (GRI) | RP2 | 186 | 3 |
| | Carbon Disclosure Project (CDP) | RP1 | 26 | 2 |

Source: modified from Brotto (2016).

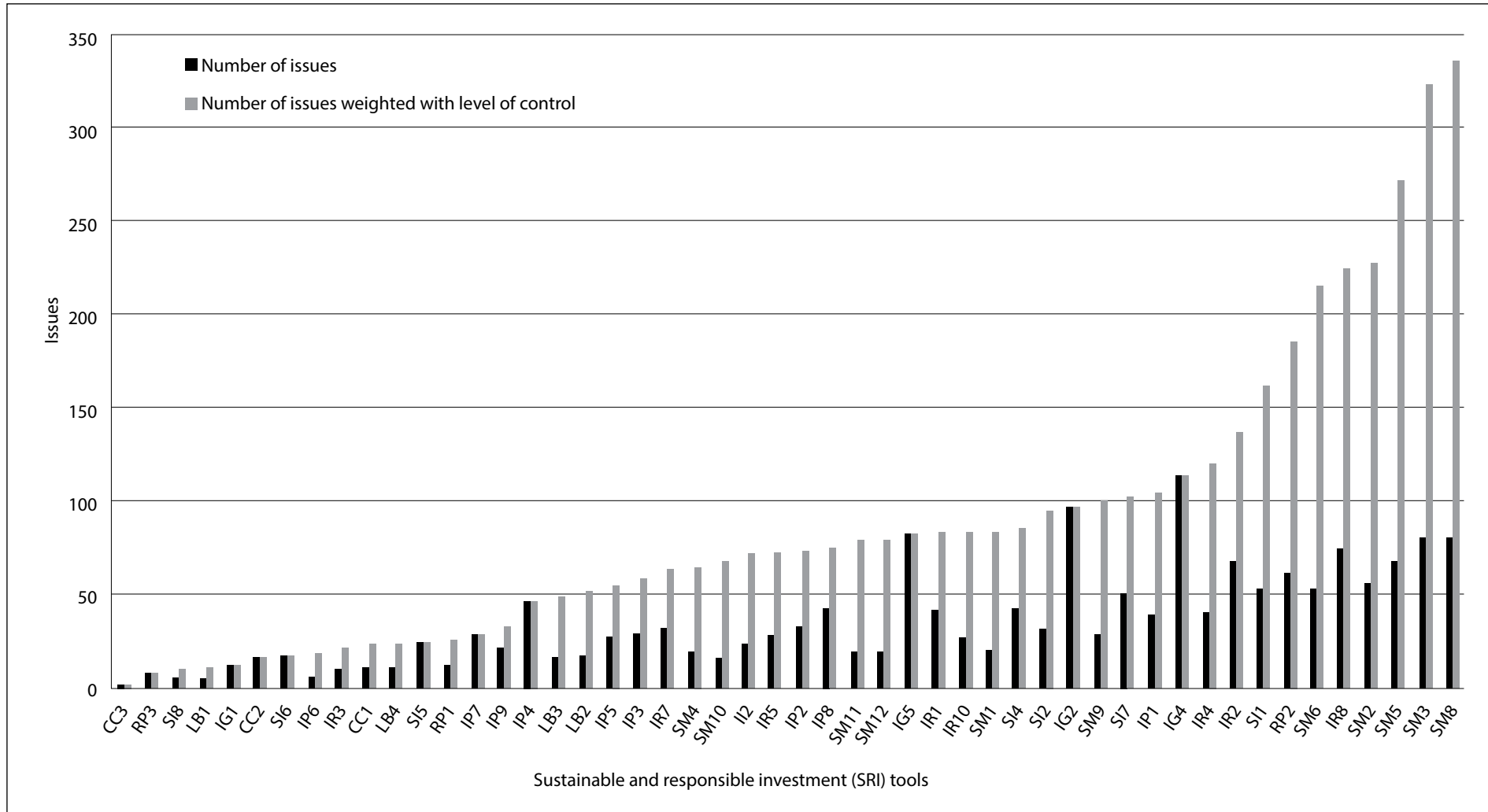


Figure 8. Performance of SRI tools based on frequency of issues. In green, the occurrence of the issue in SRI tools is weighted by the corresponding level of control.

6 conclusions

Investments in planted forests are constantly growing, with USD 70–80 billion of assets under management in recent years (FAO 2012). More than 30% of the professionally managed assets globally are labeled as “Sustainable and Responsible” (GSIA 2014). Yet, there is no commonly accepted or agreed definition of what makes an investment in planted forests sustainable and responsible. It is thus very difficult for investors, investment companies, plantation companies and processing industries to understand each other’s needs when investors want to make responsible investments and companies want to show that their operations are sustainable and thus worth the investment.

To summarize, this study set out with two objectives: first, to describe and categorize the existing so-called sustainable and responsible investments (SRIs) applied in productive planted forests, and the tools investors use (SRI tools, e.g. standards, guidelines or codes of conduct) to provide evidence that the investments are indeed sustainable and responsible; second, to provide a framework for the evaluation of the performance of SRI tools, notably with regard to the Environmental, Social and Governance (ESG) Criteria that investors in planted forests should use to make their investment decisions.

6.1 What are key characteristics of investments in planted forests?

While traditionally located in North America, investors in planted forests are moving to emerging markets with good financial prospects. Both retail and institutional investors are involved in investments in planted forests, thanks also to the positive investment portfolio effect played by timberland activities. Over the years, the scope of investments has shifted from a purely timber

perspective to a more diversified set of products and services including certified timber, ecosystem services and wood energy.

Investors are increasingly adopting sustainable and responsible investment (SRI) strategies to account for environmental, social and governance (ESG) issues in their investment processes (EUROSIF 2014). Findings indicate that, as of today, the most common SRI strategies look for investments that have a clear focus on specific issues related to environmental and social sustainability, as well as the implementation of measures that foster good governance in the forest sector (e.g. forest funds). Another adopted strategy consists in using existing, external tools that focus specifically on ESG issues and that are then integrated in the investment strategy (e.g. use of FSC certification as a framework for risk assessment).

All in all, 339 organizations operating in SRIs in planted forests in emerging markets were identified and then divided into three major groups: market players (e.g. investment companies), governments and civil society (e.g. NGOs) and SRI infrastructure (e.g. SRI rating).

6.2 Which SRI tools are commonly used?

Since 1991, at least 50 SRI tools applicable to planted forests investments have been developed. The most common instruments are management standards (e.g. FSC), bank investment policies (e.g. ABN AMRO Forest and Plantation Policy) and investment rating systems (e.g. FairForest). Only a few SRI tools are specific to planted forests. This scarcity could be expected because forests typically represent only a fraction of an investment portfolio. In addition, consolidated voluntary sustainability instruments, such as FSC

certification, avoid distinctions between planted forests and natural forests in order to ensure the same quality of forest management across all types of forests; thus, planted forests are not identified as such but fall into the larger group of forest-related investments. On the other hand, SRI tools specific to planted forests emerged only recently (e.g. Gold Standard, FAST Impact Indicators for Forest Plantations, CDM), and their applicability and market appeal have not yet been fully tested.

Findings indicate that business companies manage up to 60% of the SRI tools, despite NGOs playing a relevant role in the development of management standards. Investors use more than 30 SRI tools (e.g. investment standards, investment ratings and bank investment policies), yet with a low level of control: signature and/or participation or at the most a conformity declaration. By contrast, plantation companies use fewer instruments but with a higher level of control, such as conformity assessment and certification.

Cross-referencing or coordination among SRI tools (the extent to which an SRI tool refers to other SRI tools in order to meet its own requirements, e.g. a bank investment policy referring to the existence of the FSC certification scheme when taking a decision about an investment in a logging company) was found in about 50% of the tools assessed, and it is expected to grow. Indeed, the recent uptake of an integrated approach to the analysis of the supply chain of companies and products (e.g. the Carbon Disclosure Project) forces SRI tools to move toward a better coordination to meet the need for consistency over reporting and comparisons along the chain. Cross-referencing and mutual recognition is also considered an element of constitutive effectiveness, a positive process to avoid the proliferation of standards that results in consumer confusion and fatigue as well as in increasing transaction costs (UNFSS 2013).

6.3 What are the issues covered by SRI tools?

Our analysis of the 50 SRI tools resulted in the development of an ESG Reference Document to evaluate investments in planted forests. Overall, assessed SRI tools mention 155 different issues (e.g. What is the risk of illegal logging occurring?

and Are there rules in place for the prevention of encroachment?). The most recurrent issue concerns the existence of third-party verification schemes (found in 74% of assessed SRI tools). All issues could be grouped into several larger sections. Among these, issues focusing on the legal and institutional framework and on environmental impacts are those represented most often.

In addition to their existence, another important characteristic of the issues mentioned in SRI tools is the monitoring and control of their actual implementation. In this sense, findings indicate that the most controlled issues relate to respect for the law, to the existence of environmental impact assessments or third-party certification, but also to the existence of clear tenure rights or platforms for any communication among stakeholders. Conversely, issues such as the existence of schemes aimed at poverty reduction, or at preventing encroachment, or the existence of minimum established percentages of protected areas are not only the most infrequent, but also the least controlled ones.

6.4 Which SRI tools do best in incorporating environmental, social and governance (ESG) issues?

We assessed the performance of SRI tools in incorporating ESG issues. Following the ISEAL Alliance (2012) and the ISO (2004) standards, we identified and scored SRI tools based on four levels of control: signature and/or participation, conformity declaration, conformity assessment and certification. The Forest Stewardship Council and Gold Standard have developed SRI tools with the highest performance among the 50 SRI tools analyzed. Other high-performance SRI tools are the ABN AMRO Forest & Plantation Policy, WWF Responsible Investment Guide, FTSE4Good Index Series, and those developed by RepRisk, Fairforest and Certified B Corporation.

Yet, a series of caveats when considering even the best performing SRI tools must be kept in mind. First, high-performing SRI tools (e.g. FSC certification) are not applicable in a straightforward manner in every country. Several factors might limit their applicability, such as the national performances in terms of legality, governance, political stability, or the role of stakeholders in

defining the national standards. All these elements should be considered by investors when selecting SRI tools. When a high-performing SRI tool is not readily implementable, a stepwise approach may be preferable. For instance, investors could initially select priority sustainability issues that could be reached by using more targeted SRI tools that perform less well, and only later raise the bar of their sustainability performance by possibly moving to high-performance SRI tools.

Second, the investment could face aspects that are not covered even by high-quality SRI tools. For example, this is the case for FSC certification as regards climate change, REDD projects, supply chain analysis of goods causing deforestation (e.g. soy beans, palm oil, etc.) and large biomass energy plants. In these cases, even high-quality SRI tools need to be merged with other dedicated SRI tools characterized by lower total performance but higher sector specificity.

Third, the scale of projects can heavily affect the applicability of SRI tools. Typically, SRI tools are more common in large-scale planted forest investments with the scope of trading timber and other forest products and services at the international level. When the scale of investments is small and aims at supplying local markets, using high-quality SRI tools or even merging several dedicated tools is often prohibitive because of high transaction costs. This situation can create a dualistic approach to the application of SRI tools. While in principle this should be acceptable, the dualistic approach could generate conflicts if the scarcity of land requires small investors to enter the international market, with issues such as land grabbing and encroachment being the first elements to check when assessing the sustainability of the investment.

6.5 Recommendations

6.5.1 For market players

- SRI tools used by investors and investment companies on average are controlled in only a limited way or are not controlled externally at all. For instance, our findings indicate that most of the SRI tools used by investors require only a signature or an indication of participation

as control mechanism. Hence, the generic assumption of responsibility occurs through a declaration and a written statement. Thus, management standards, investment ratings and investment standards using third-party, independently accredited certification should be favored.

- Within the framework of this assessment, the best performing SRI tools were those of Gold Standard, RepRisk and Global Reporting Initiative (GRI) and the tools called FSC Forest management/Chain of Custody certification, ABN AMRO Forest & Plantation Policy, WWF Responsible Investment Guide. For investors concerned with the integration of ESG issues in their SRI strategies, these tools should be considered. Of course, this study provided only a snapshot assessment. Thus, the regular monitoring of SRI tools is needed in order to ensure reliable comparisons over time. Also, a stepwise approach should be adopted for those investments that can rarely meet the requirements of the best performing SRI tools.

6.5.2 For SRI infrastructure

- Few SRI tools specifically target planted forests. As a consequence, SRI tools emphasize issues typical of natural forest management (e.g. high conservation value forests and illegal logging). SRI tools specific for planted forests or with dedicated emphasis on planted forests should be considered, if applicable to the investment. Investments giving priority to aspects such as climate change, biomass for energy and a wider supply chain approach (e.g. including agriculture commodities) should be able to find a coordinated approach between forestry standards and more specific SRI tools for climate change, energy and agriculture impacts.
- Climate change impacts, long-term financial sustainability, poverty reduction and encroachment are marginalized in current SRI tools. These issues can generate important risks for investments in planted forests, and hence deserve more specific attention and solutions. The expansion from large-scale investment using SRI tools to investments in small-scale forest areas could increase and exacerbate the risk of land grabbing, encroachment and negative social impacts.

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Annexes

All annexes are adapted and modified from Brotto (2016).

Annex 1. Historical overview of investments in planted forests

| | 1980 | 1990 | 2000 | 2010 | 2020 |
|-------------------------|--|---|---|--|--|
| Assets under management | USD 1 billion | USD 12 billion | USD 30 billion | USD 70–80 billion | |
| Regions | US | US, New Zealand | US, Oceania, Brazil, Uruguay, Chile | US, Latin America, Oceania, Eastern Europe, Asia, Southern and Eastern Africa | US, Latin America, Oceania and Asia. Emerging markets: Colombia, Mozambique and Tanzania |
| Drivers | First studies of timberland investments as inflation hedge and balance in portfolio return | Benefits of diversification and inflation hedging. Growing demand for wood products. High returns in emerging markets | | Benefits of diversification and inflation hedging. Growing demand for forest products in emerging markets. Possibility of sustainable and responsible investments | |
| Products | Timber | Timber and certified timber | Timber, certified timber and carbon | Timber, certified timber, ecosystem services | Timber, certified timber, wood-energy and ecosystem services |
| SRI strategies | Since 1930 based on Exclusion (e.g. no tobacco) | Emergence of environmental issues | New SRI products for retailer based on United Nations Principles for Responsible Investments. Key role of Institutional Investors | | Legislative drivers and third-party certification |
| Plantation ownership | Forest companies | New instruments for institutional and private investors | US Timberland Investment Management Organizations (TIMOs) and Real Estate Investment Trusts (REITs) | Growing role of private equity, private small and medium-sized tree growers, lease arrangements between states and companies, partnerships between strategic and financial investors as well as between companies and local landowners | |

Source: adapted from EUROSIF (2012), FAO (2012) and Indufor (2012).

Annex 2. Historical overview of sustainable and responsible investments

| | 1700 | 1920 | 1960 | 1970 | 1990 | 2000 | 2010–2020 |
|----------------|----------------------------------|---|---|--|--|--|---|
| Definition | Ethical finance | Ethical finance | Responsible investments | Socially responsible investments | Socially responsible investments | Sustainable and responsible investments (SRIs) | SRI or Impact Investing |
| Investors | Quaker movement | Religious groups such as Methodists and Quakers | Religious groups and related funds | Expansion toward institutional investors. Emergence of activist investors | Expansion of institutional investors and emergence of retail sector | Expansion to all investor types | Consolidation of institutional investors and expansion of retail sector |
| Regions | US | US and UK | US and Europe | US and Europe | US and Europe | US and Europe | Global |
| SRI strategies | Exclusion | Exclusion | Exclusion | – Exclusion – Engagement and Voting | – Exclusion – Engagement and Voting | – Exclusion – Engagement/Voting – Norms-based screening – ESG integration – Best-in-Class – Sustainability themed – Impact investing | All previous strategies and further development (e.g. bonds) |
| Drivers | Exclusion of slavery and weapons | Avoiding ‘sinful’ products such as alcohol and tobacco. In 1928, the Pioneer Fund is the first ethical fund | Avoiding ‘sinful’ products such as alcohol, tobacco and pornography | Exclusion from products to individual companies’ behavior. Society pressure: US civil rights movement, Vietnam war and apartheid | Uptake of environmental issues after 1992 Earth Summit. From faith-based to public awareness. In 1990, The KLD 400 Social Index is the first SRI index | From social responsibility to sustainable development. Focus on added financial value of SRI. In 2006, the Principles for Responsible Investment (PRI) are published | Measurement and monitoring of ESG impacts. Influential sections: climate change and energy. Third-party accredited certification of research and SRI labels |

Source: (Kinder and Domini 1998; EUROSIF 2012a; Louche et al. 2012; EFAMA 2014).

Annex 3. Strategies of sustainable and responsible investments

| Strategy | Logic | Features |
|-----------------------|---|---|
| Exclusions | Certain products, sectors, companies or countries are excluded from portfolio either on a religious faith-based or a reputational-based approach | The oldest and largest approach in terms of AUM strategies (about 40% of European AUM for a value of EUR 7 trillion in 2013). Common exclusion criteria include weapons, pornography, tobacco and animal testing. It is a 'subjective' strategy based on the ethical or value decisions of asset managers/owners. |
| ESG integration | ESG risks and opportunities are calculated through a research process and included in the financial analysis | Information gathering is usually the first step of an asset manager toward SRI. ESG integration has three levels: i) nonsystematic with available research but no formalized process; ii) systematic, based on continuous inclusion of research in financial analysis; and iii) mandatory, with ESG findings compulsorily included. It is the second largest strategy in Europe. |
| Norms-based screening | The selection of investments is based on the respect of international norms and standards. Is usually a negative selection (exclusion) | Originated in North Europe. International norms and standards such as: United Nations (UN) Global Compact, Organisation for Economic Co-operation and Development (OECD) Guidelines, International Labour Organization (ILO) guidelines, etc. Rapidly expanding strategy at the global level in all investment sectors. Independent of the asset manager/owner. It can be combined with rating systems to define the level of commitment of companies to norms and standards. |
| Engagement and Voting | Engaging, taking ownership and voting on ESG matters. For example, a fund can enter into companies that are part of the portfolio to push for the improvement of a company's ESG performances | UK-driven strategy expanding to other countries with the highest compound annual growth rate (36%) in 2011–2013. The strategy is fueled in Europe by the 2014 European Commission's proposal for the revision of the Shareholder Rights Directive (Directive 2007/36/EC). |
| Best-in-Class | Through an ESG analysis, the best performing or best improved companies/sectors are identified. For example, the best ESG-performing 30%–50% of companies are selected. This is a typical positive selection process | The strategy can also include best-in-universe and best-effort. |
| Sustainability themed | Investments dedicated to specific sustainability sector/products such as renewable energy, climate change, forestry, health, etc. | Mostly indirect investments, i.e. the selling or buying of already existing investments. Mostly connected to environmental class. Sometimes the sustainability is more related to the sector itself rather than to ESG performances. This is a rather fragmented, small size, slow growing and regulation-dependent investment sector (e.g. small climate funds whose market expectation is connected to the institutional carbon market agenda). Forestry funds account for 10.9% of the AUM (EUR 3.06 billion in 2012). |
| Impact investing | An umbrella strategy with the common objective to produce financial return while generating measurable social and environmental impacts. The strategy includes: microfinance, community investing, social business/entrepreneurship, etc. | To be distinguished from philanthropy – investors are becoming asset owners and expecting financial returns. It is the smallest strategy in terms of AUM but has the fastest compound annual growth rate (CAGR) (+52% between 2011 and 2013). |

Source: (EFAMA 2014; EUROSIF 2014; Scholtens 2014).

Annex 4. Stakeholders operating in the forest SRI sector

| Group | Class | Acronym | Role | Examples |
|-------------------------|------------------------------|---------|---|--|
| Ordinary market players | Investors | INV | Investors can be institutional or retail. Institutional investors include pension funds, insurance companies and banks, which generally have substantial assets and experience in investments. Retail investors deal in securities only occasionally, dealing especially in only small quantities. Mutual funds are pools of money that are managed by an investment company. Include also high net worth individuals | TIAA-CREF, European Investment Bank |
| | Investment companies | INC | Firms that invest the funds of investors in securities appropriate for their stated investment objectives in return for a management fee. Include also investment managers, asset management companies, TIMOs and REITs | New Forests, Global Forest Partners LP |
| | Plantation companies | PLCs | Companies that manage planted forests operations including land clearing, nurserying, plantation and harvesting | Green Resources, Dak To Planko |
| | Processing industries | PIs | Companies involved, but not exclusively, in the processing of timber from planted forests | Fibria, Pomera Garruchos |
| SRI infrastructure | Certification bodies | CBs | Independent and accredited organizations controlling the respect for standards | NEPCon, TUV SUD |
| | Accreditation bodies | ABs | Organizations controlling certification bodies and rating agencies | ASI, GISR |
| | SRI standard setters | STDs | Organizations involved in the development of standards for SRI in the planted forests sector. Include all investment processes: from sustainable accounting to forest management standards | FSC, SASB, IRIS |
| | SRI rating | RTG | Organizations that rate funds, companies and investments based on a defined set of SRI indicators | EIRIS, GIIRS |
| | SRI consultants and advisors | C&As | Companies or individuals consulting investors, investment companies and plantation managers on forestry and SRIs | INDUFOR, OpenForest |
| | SRI associations and forums | A&Fs | Nonprofit associations and forums supporting the uptake of SRIs at the investor level through advocacy and networking activities | FAST, Ethical Investment Association |
| | SRI directories | DRTs | On-line instruments providing investors with information databases on company and sector performances | The Global Mechanism |

continued on next page

Annex 4. Continued

| Group | Class | Acronym | Role | Examples |
|-------------------------------|-------------------------------|----------------|--|-----------------------------|
| Governments and civil society | Nongovernmental organizations | NGOs | Nongovernmental organizations supporting or involved in planted forests SRIs | WWF, Ecotrust |
| | International organizations | IOs | Also known as international governmental organizations are made up of sovereign states and operate in the field of investments and the forestry sector | UN, World Bank, CIFOR |
| | Plantation associations | PAs | Associations of planted forests owners providing technical and advocacy services | AFOA, UTGA |
| | Research organizations | RSCs | Universities, independent research groups and think-tanks operating in the forestry investment sector | The Global Canopy Programme |

Source: adapted from Financial Dictionary (www.financial-dictionary.thefreedictionary.com), Wall Street Oasis (www.wallstreetoasis.com), Investopedia (www.investopedia.com), Borsa Italiana (www.borsaitaliana.it).

Annex 5. SRI tools – descriptive variables

| Variables | Elements considered in definitions of variables |
|--|--|
| Type What kind of instrument is it? | Management standard Bank investment policy Investment guideline Investment standard Reporting standard Investment rating Legality benchmark Investment index Code of conduct |
| Specificity Is it a forest-specific or a broader scope instrument? | Broad Forest (including planted forests) Planted forests |
| Governance Which type of organization is developing and managing the SRI tool? | Academic Business Government NGOs |
| Investment process stage Who is using the instrument? | Investors Investment companies Plantation companies Processing and selling companies |
| Level of control How is the application of the instrument controlled? | Signature and/or participation Conformity declaration Conformity assessment Certification |
| First time to be made public When has the SRI tool been made public? | Date of first publication of the SRI tool |
| Geographic origin Where was the tool first produced? | Africa, Asia, Europe, Oceania, North America, South America |
| Geographic application Where is the tool implemented/implementable? | Africa, Asia, Europe, Oceania, North America, South America, International |
| Coordination To what extent is there coordination with other tools? | Number of coordinated SRI tools |
| Market share How extensively is the tool applied in terms of impacted area and/or number of companies? how far is the tool applied in term of impacted area and/or number of companies? | Number of companies, AUM or hectares involved |

Source: own elaboration.

Type of instruments

There is a plethora of SRI tools used for investments in planted forests, including internal policies, codes of conduct, standards (either for management, investment or accounting), reporting tools, investment guidelines, rating systems and indexes. Legality benchmarks such as the Lacey Act, the EU Timber Regulation and FLEGT are also included, despite not being voluntary but rather regulatory instruments. In fact, these instruments have become legally binding only in the last 5 years, changing their status from voluntary legality instruments to legality verification instruments.

In addition, country indicators are mentioned, which focus on transparency, political or governance risks and forest investment attractiveness. These country indicators are not considered SRI tools but are, however, essential evaluation tools addressing the country's friendliness toward planted forests investments. The definition of instruments is based either on:

- recurrent consistent definitions based on peer-reviewed studies
- or on:
- financial terminology consistent among online financial dictionaries such as:
 - Financial Dictionary - www.financial-dictionary.thefreedictionary.com;
 - Wall Street Oasis - www.wallstreetoasis.com;
 - Investopedia - www.investopedia.com;
 - Borsa Italiana - www.borsaitaliana.it;

Types of SRI tools

| Type of tool | Definition | Example |
|------------------------|--|---|
| Management standard | Standards applied at plantation management level and/or at processing level. Usually involve a third-party independent and accredited certification process. | Forest Stewardship Council (FSC) standards |
| Bank investment policy | Internal bank policies aiming at the inclusion of Environmental Social and Governance criteria in the management of investments. | Goldman Sachs – Environmental Policy Framework |
| Investment guideline | Procedural guideline adopted or produced by organizations involved in planted forests investments. | WWF Responsible Investment Guide |
| Investment standard | Standards applied at company level for the inclusion of ESG. May or may not involve third-party independent and accredited certification. | Certified B Corporation |
| Reporting | Framework for disclosing information on ESG performances. Mostly applied at both investment and processing levels. | Global Reporting Initiative (GRI) |
| Investment rating | Profile organizations based on their ESG performances. | SCOPEinsight |
| Legality benchmark | Forest-related legality requirements. | EU Timber Regulation |
| Investment index | Index that measures the performance of companies that meet globally recognized corporate responsibility standards. | FTSE4Good Index Series |
| Code of conduct | Internal set of rules that shapes the sustainability strategy of companies. | CEPI – Legal Logging Code of Conduct for the Paper Industry |
| Country indicators | Indicators that are used to compare the investment friendliness of a country. | Index of Economic Freedom |

Source: own elaboration.

Specificity

For the purposes of the present study, three specific levels have been defined:

- **Broad** – it indicates whether the SRI tool is targeting multiple investment sectors, including also the management of natural forests and planted forests.
- **Forest** (including planted forests) – adapting Masiero and Secco's (2013) definition, it indicates whether the SRI tool is specifically defined for the forest sector or not. This level includes both natural forests and planted forests.
- **Planted forests** – it indicates whether the SRI tool is specifically defined for planted forests.

Governance

Market instruments can also be distinguished based on the governance of the bodies involved in the standard-setting process, certification and accreditation systems, rating and networking. Despite the seeming quality of an instrument, it might not be formed through governance structures that are sufficiently impartial, democratic or ethical. Instruments backed by international NGOs (e.g. WWF, Greenpeace, etc.), research institutions and intergovernmental bodies (e.g. UN) might be seen as more independent than those instruments managed by industrial associations or other organizations that have a direct financial stake in the application of SRI tools.

It also has to be considered that, independently of the dominant governance structure, many instruments are supported by multiple types of organizations. An example is the Forest Stewardship Council (FSC) certification system, originally supported by environmental NGOs and nowadays representative of a multiple set of stakeholders coming from industry, NGOs, governments, etc.

Five dominant governance structures have been identified:

- **academic**, includes universities and independent research organizations
- **business**, includes industry associations and private organizations
- **government**, includes IOs and UN bodies
- **NGO**, includes all instruments that have a relevant or dominant participation of NGOs.

Investment process stage

The investment process stage refers to the specific group of SRI stakeholders using a certain tool. In fact, SRI instruments can have different levels of vertical integration along the investment process. While some tools focus at the investment level (e.g. environmental and social policies of banks and investment rating systems), others might specifically target planted forests management practices (e.g. the Gold Standard instrument and other carbon standards). In some cases, SRI instruments, such as those of the Global Reporting Initiative (GRI), can be used along the whole investment process. Four investment process levels are suggested in order to facilitate instrument selection and use by stakeholders:

- **SRI tools for investors:** these tools are used by banks, fund managers, high net worth individuals, etc., such as the UN PRI; these tools are generally characterized by a multiple sector approach and are used for the selection of investments based on ESG criteria. Planted forests constitute only 2–3% of the investors' overall portfolios; hence, the forestry knowledge among investors is expected to be low. Investors are usually aware of the existence of specific planted forests SRI tools but do not have the knowledge to select them based on quality criteria.
- **SRI tools for investment companies:** these tools are directly linked to the incorporation of ESG criteria during the selection and management of investments in planted forests. These tools can have a multiple sector approach as well as forest and planted forests specificity (e.g. Dow Jones Sustainability Indices).
- **SRI tools for plantation companies:** these are instruments that are applied at the planted forests management unit level and have no reference to the investment process. Occasionally, investors may include them in their decision-making process. Examples are FSC and carbon standards (e.g. the Gold Standard instrument). These tools have high planted forests specificity.
- **SRI tools for processing industries:** processing companies such as sawmills, paper mills, etc., use these instruments. This group includes instruments for organizations that are much closer to the final consumers (e.g. Carbon Disclosure Project). These tools could range from multiple sectors to high planted forests specificity depending on their application at the process level (e.g. ISO 14001, FSC Chain of Custody) or product level (e.g. Forest Disclosure Project).

Level of control

Because the use of tools is voluntary and therefore not controlled by any nation states' regulatory authority, the quality of SRI instruments is not only based on their contents but also on the type of control that is performed in order to ensure respect for the instruments. The table below summarizes the four levels of applicable control (ISO, 2004; ISEAL Alliance 2012):

- signature and/or participation
- conformity declaration
- conformity assessment
- certification.

Each level of control has been assigned a score ranking from 1 (lowest level) to 4 (highest level of assurance). In addition, one or more control strategies have been identified for each level of control.

Level of control for SRI tools applied in planted forests investments

| Level of control | Description | Examples | Score | Control strategies |
|--------------------------------|--|---|-------|--|
| Signature and/or participation | Official acceptance, endorsement and support, at the high decision levels of an organization, of initiatives such as campaigns, networks and other initiatives requiring signature. No reference to any specific standard. General commitment with no control system in place. | Ecobanking Project | 1 | – Issue – Signature |
| Conformity declaration | Also known as first-claim certification, it involves the declaration of the respect of certain standards or guidelines, both internal or external. No control system is in place. | UN PRI | 2 | – Risk Assessment – Reporting – Conformity declaration |
| Conformity assessment | Also known as second-claim certification, it involves the assessment of an organization's conformity to standards or guidelines by an external BUT non-independent control agency. It also includes monitoring activities via governmental bodies, usually focusing on legality control. | – Certified B Corporation – EU Timber Regulation | 3 | – Conformity assessment – Exclusion |
| Certification | Also known as third-claim certification, it involves assessment of an organization's conformity to standards or guidelines by an external, independent and accredited control agency. | – ISO 14001 – FSC – Gold Standard | 4 | – Certification |

Source: own elaboration.

First time to be made public, coordination, geographical origins and application, market relevance

Additional descriptive variables considered are:

- **First time to be made public:** the date of first publication of the SRI tool is recorded.
- **Coordination:** an SRI tool can refer to other SRI tools in order to meet requirements or to address definitions and benchmarks. This process of cross-referencing and mutual recognition is considered an element of constitutive effectiveness, a positive process to avoid the proliferation of standards that results in consumer confusion and fatigue (UNFSS 2013). This descriptive variable is defined by the number of SRI tools to which the single tool is related.

- **Geographical origins:** it represents the geographical region in which the SRI tool was first developed and applied. Options are Africa, Asia, Europe, Oceania, North America and South America.
- **Geographical application:** it refers to the actual or potential geographical area of application of the instrument. Options are Africa, Asia, Europe, Oceania, North America, South America and International.
- **Market relevance:** it specifies the number of companies, the AUM or the area (in hectares) of planted forests involved. Market relevance is obtained either from the literature or through market reports of each single SRI tool.

Annex 6. Sections, subsections and number of issues

| Sections | Subsections | Number of issues |
|---|---|------------------|
| Legal and institutional framework | Legislation | 3 |
| | Illegal logging | 11 |
| | Property | 1 |
| Forest management | Forest management planning | 6 |
| | Health and vitality of forest ecosystem | 6 |
| | Finance | 6 |
| Governance, disclosure and transparency | Governance | 8 |
| | Stakeholders | 5 |
| | Disclosure and reporting | 9 |
| Community and employees | Local communities and indigenous people | 13 |
| | Workers | 7 |
| Environment | Environmental impacts | 7 |
| | High conservation value forests | 6 |
| | Plantation design and natural forests | 10 |
| | Chemicals | 6 |
| | Environmental management system | 5 |
| Climate change and ecosystem services | Carbon credits | 9 |
| | Greenhouse gases | 4 |
| | Ecosystem services | 3 |
| Supply chain and traceability | Traceability | 2 |
| | Supply chain | 9 |
| | International sustainability standards | 19 |

Source: own elaboration.

Annex 7. SRI tools database

| Type of tool | Number of tools | Instruments |
|------------------------|-----------------|---|
| Management standard | 11 | <ul style="list-style-type: none"> - American Carbon Registry (ACR) - Clean Development Mechanism (CDM) - Climate, Community and Biodiversity (CCB) Standards - Fair Trade Standard for Timber - Forest Stewardship Council (FSC) standards - ISO 14001 - Programme for Endorsement of Forest Certification Schemes (PEFC) - Plan Vivo - SA8000 - Gold Standard - Verified Carbon Standard |
| Bank investment policy | 9 | <ul style="list-style-type: none"> - ABN AMRO Forest and Plantation Policy - Bank of America Forest Practices - Citigroup Environmental and Social Risk Management Policy - Goldman Sachs Environmental Policy Framework - HSBC Forestry Policy - Triodos Investment Strategy - World Bank Forestry Strategy and Operational Policy - ING ESR Policy - Co-operative Bank Ethical Policy |
| Investment rating | 8 | <ul style="list-style-type: none"> - Global Impact Investing Rating System (GIIRS) - Equitics - FairForest - Impact Assets - Asset4 ESG - ETICA SGR - CSR HUB - RepRisk |
| Investment standard | 7 | <ul style="list-style-type: none"> - Certified B Corporation - Domini Global Investment Standards - Equator Principles - Global Compact - IFC Performance Standards - Impact Reporting and Investment Standards (IRIS) - UN Principles for Responsible Investment (UN PRI) |

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Annex 7. Continued

| Type of tool | Number of tools | Instruments |
|----------------------|-----------------|---|
| Legality benchmark | 4 | <ul style="list-style-type: none"> - Australian Illegal Logging Prohibition Act - EU FLEGT - EU Timber Regulation - Lacey Act |
| Investment guideline | 4 | <ul style="list-style-type: none"> - Ecobanking Project - PWC Forest Finance Toolkit - WBCSD Sustainable Procurement of Wood and Paper-based Products Guide and Resource Kit - WWF Responsible Investment Guide |
| Reporting | 3 | <ul style="list-style-type: none"> - Carbon Disclosure Project (CDP) - Global Reporting Initiative (GRI) - SD-KPI Standard 2010–2014 |
| Code of conduct | 3 | <ul style="list-style-type: none"> - CEPI – Legal Logging Code of Conduct for the Paper Industry - Collevocchio Declaration - Pacto Intersectorial por la madera legal |
| Investment index | 1 | <ul style="list-style-type: none"> - FTSE4Good Index Series |
| Total | 50 | |
| Country indicator | 9 | <ul style="list-style-type: none"> - Corruption Perception Index - Doing Business - EU sanctions or restrictive measures in application of Rg. (EU) 995/2010 - FLEGT Progress in Voluntary Partnership Agreements - Global Risk 2013 - GINI Index - Illegal Logging Index - Index of Economic Freedom - UN Security Council Sanctions Committees – Timber Export Sanctions - Worldwide Governance Indicators (WGIs) |

Source: own elaboration.

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Annex 7. Continued

| Tool | Code | Type | Specificity | Governance | Level of control | Geographical origin | Geographical application | First publication | Coordination | Market share (as of 2013 reports or November 2014 website update) |
|---|------|------------------------|-------------|------------|------------------|---------------------|--------------------------|-------------------|--------------|---|
| CEPI – Legal Logging Code of Conduct for the Paper Industry | CC1 | Code of conduct | Forest | Business | 1 | Europe | Europe | 2005 | 1 | 636 companies, EUR 75,500 million |
| Pacto Intersectorial por la madera legal | CC2 | Code of conduct | Forest | Government | 1 | South America | South America | 2011 | 1 | NA |
| Collecchio Declaration | CC3 | Code of conduct | Broad | NGO | 1 | Europe | International | 2003 | 1 | 40 members mostly NGOs and research organizations |
| Ecobanking Project | IG1 | Investment guidelines | Broad | Academic | 1 | South America | International | 2003 | 1 | 300 financial institutions |
| PWC Forest Finance Toolkit | IG2 | Investment guidelines | Forest | Business | 1 | Europe | International | 2009 | 4 | NA |
| WWF Responsible Investment Guide | IG4 | Investment guidelines | Forest | NGO | 1 | North America | International | 2003 | 7 | 15 organizations involved |
| WBCSD Sustainable Procurement of Wood and Paper-based Products Guide and Resource Kit | IG5 | Investment guidelines | Forest | Business | 1 | Europe | International | 2013 | 7 | NA |
| FTSE4Good Index Series | II2 | Investment index | Broad | Business | 3 | North America | International | 2001 | 4 | NA |
| ABN AMRO Forest & Plantation Policy | IP1 | Bank investment policy | Forest | Business | 2 | Europe | International | 2013 | 1 | NA |
| Bank of America | IP2 | Bank investment policy | Broad | Business | 1 | North America | International | 2004 | 1 | NA |
| Citigroup ESRM (Environmental & Social Risk Management Policy) | IP3 | Bank investment policy | Broad | Business | 1 | North America | International | 2006 | 4 | NA |
| Goldman Sachs – Environmental Policy Framework | IP4 | Bank investment policy | Broad | Business | 1 | North America | International | 2007 | 2 | NA |

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Annex 7. Continued

| Tool | Code | Type | Specificity | Governance | Level of control | Geographical origin | Geographical application | First publication | Coordination | Market share (as of 2013 reports or November 2014 website update) |
|---|------|------------------------|-------------|------------|------------------|---------------------|--------------------------|-------------------|--------------|---|
| HSBC | IP5 | Bank investment policy | Broad | Business | 1 | Europe | International | 2004 | 2 | NA |
| Triodos Investment Strategy | IP6 | Bank investment policy | Broad | Business | 1 | Europe | Europe | NA | 2 | NA |
| WB Forests Strategy and Operational Policy | IP7 | Bank investment policy | Forest | Government | 1 | North America | International | 2002 | 1 | NA |
| ING ESR Policy | IP8 | Bank investment policy | Broad | Business | 1 | Europe | International | 2003 | 4 | NA |
| Co-Operative Bank Ethical Policy | IP9 | Bank investment policy | Broad | Business | 1 | Europe | Europe | 1992 | 1 | NA |
| GIIRS – Global Impact Investing Rating System | IR1 | Investment rating | Broad | Business | 2 | North America | International | 2009 | 1 | 900 companies, Certified B Corporation |
| Equitics (includes Forum Ethibel) | IR10 | Investment rating | Broad | Business | 3 | Europe | International | 2003 | 1 | NA |
| FairForest | IR2 | Investment rating | Forest | Business | 2 | Europe | International | 2014 | 5 | 1 project |
| ImpactAssets | IR3 | Investment rating | Broad | Business | 2 | North America | International | 2010 | 4 | NA |
| ASSET4 ESG | IR4 | Investment rating | Broad | | 2 | North America | International | 2010 | 6 | 3500 companies |
| Etica SGR | IR5 | Investment rating | Broad | Business | 1 | Europe | International | 2003 | 1 | 1 billion AUM |
| CSR HUB | IR7 | Investment rating | Broad | Business | 3 | North America | International | 2008 | 5 | 9143 companies |
| RepRisk | IR8 | Investment rating | Broad | Business | 3 | Europe | International | 2006 | 6 | NA |

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Annex 7. Continued

| Tool | Code | Type | Specificity | Governance | Level of control | Geographical origin | Geographical application | First publication | Coordination | Market share (as of 2013 reports or November 2014 website update) |
|--|------|---------------------|-------------|------------|------------------|---------------------|--------------------------|-------------------|--------------|--|
| Australian Illegal Logging Prohibition Act | LB1 | Legality benchmark | Forest | Government | 1 | Oceania | Oceania | 2013 | 0 | NA |
| EU FLEGT | LB2 | Legality benchmark | Forest | Government | 3 | Europe | International | 2004 | 0 | Implemented in 6 tropical countries |
| EU Timber Regulation | LB3 | Legality benchmark | Forest | Government | 3 | Europe | Europe | 2013 | 1 | NA |
| Lacey Act | LB4 | Legality benchmark | Forest | Government | 2 | North America | North America | 2012 | 0 | NA |
| Carbon Disclosure Project (includes Forest Disclosure) | RP1 | Reporting standard | Broad | Business | 2 | Europe | International | 2003 | 1 | 162 companies with market capitalization of USD 3.24 trillion |
| GRI | RP2 | Reporting standard | Broad | Government | 3 | North America | International | 2000 | 1 | 6730 organizations |
| SD-KPI StanDarD 2010–2014 | RP3 | Reporting standard | Broad | Business | 1 | Europe | International | 2010 | 1 | NA |
| Certified B Corporation | SI1 | Investment standard | Broad | Business | 3 | North America | International | 2006 | 5 | 900 certified B organizations |
| Equator Principles | SI2 | Investment standard | Broad | Business | 3 | Europe | International | 2003 | 4 | 80 financial institutions in 34 countries, 70% of international project finance debt in emerging markets |
| IRIS – Impact Reporting & Investment Standards (Agriculture, Cross Sector, Environment, Financial Services, Land Conservation & Water) | SI4 | Investment standard | Broad | Business | 1 | North America | International | 2009 | 1 | 5000 organizations |

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Annex 7. Continued

| Tool | Code | Type | Specificity | Governance | Level of control | Geographical origin | Geographical application | First publication | Coordination | Market share (as of 2013 reports or November 2014 website update) |
|---|------|---------------------|-----------------|------------|------------------|---------------------|--------------------------|-------------------|--------------|---|
| Global Compact | SI5 | Investment standard | Broad | Government | 1 | North America | International | 2000 | 1 | 8000 organizations in 145 countries |
| UN Principles for Responsible Investments | SI6 | Investment standard | Broad | Government | 1 | North America | International | 2006 | 3 | 1314 financial institutions, USD 45 trillion AUM |
| IFC Performance Standards | SI7 | Investment standard | Broad | Government | 2 | North America | International | 1998 | 2 | USD 6.3 billion AUM |
| Domini Global Investment Standards | SI8 | Investment standard | Broad | Business | 2 | North America | International | 1991 | 1 | USD 1.4 billion AUM |
| American Carbon Registry | SM1 | Management standard | Forest | Business | 4 | North America | International | 2008 | 0 | USD 24 million |
| Clean Development Mechanism | SM10 | Management standard | Planted forests | Government | 4 | North America | International | 2005 | 0 | USD 90 million |
| Fair Trade Standard for Timber for Forest Enterprises | SM11 | Management standard | Forest | NGO | 4 | Europe | International | 2010 | 1 | pilot activities |
| SA 8000 | SM12 | Management standard | Broad | NGO | 4 | North America | International | 1997 | 0 | 3000 organizations |
| CCB | SM2 | Management standard | Forest | NGO | 4 | North America | International | 2005 | 0 | 0.18 million ha |
| FSC Forest Management and Chain of Custody Standards | SM3 | Management standard | Forest | Ngo | 4 | South America | International | 1993 | 1 | 16.4 million ha |
| ISO 14001 | SM4 | Management standard | Broad | Business | 4 | Europe | International | 2004 | 0 | NA |
| PEFC | SM5 | Management standard | Forest | Ngo | 4 | Europe | International | 1999 | 1 | NA |
| Plan Vivo | SM6 | Management standard | Forest | Ngo | 4 | Europe | International | 2008 | 0 | USD 10.5 million |
| The Gold Standard | SM8 | Management standard | Planted forests | Business | 4 | Europe | International | 2013 | 1 | USD 6.56 million |
| VCS | SM9 | Management standard | Forest | Business | 4 | North America | International | 2005 | 0 | USD 69.9 million |

Annex 8. SRI tools – description

Numbers inside the stakeholder box stand for the level of control. INV = investors, INC = investment companies, PLC = plantation companies, PI = processing industries.

| Tool | Description | INV | INC | PLC | PI |
|--|---|-----|-----|-----|----|
| ABN AMRO Forest & Plantation Policy | The policy seeks to prevent the bank from knowingly engaging in activities related to illegal or unsustainable resource extraction from primary or high conservation value forests. | 1 | | | |
| American Carbon Registry | The American Carbon Registry® (ACR) is a leading nonprofit US carbon market standard and registry. As the first private voluntary greenhouse gas (GHG) registry in the US, ACR boasts over 15 years of operational experience in the development of high-quality carbon offset standards and protocols, carbon offset issuance and serialization and transparent online transaction reporting. ACR has issued over 37 million carbon offsets and continues to lead voluntary carbon market innovation. | | | 4 | |
| ASSET4 ESG | Issues such as climate change, executive remuneration and employee rights are becoming as important as traditional metrics for companies and investors, making access to objective and comparable database and analysis tools critical. ASSET4, a Thomson Reuters business, provides objective, relevant and systematic environmental, social and governance (ESG) information based on 250+ key performance indicators (KPIs) and 750+ individual data points along with their original data sources. ESG data can be integrated into a traditional investment analysis to define a wide range of responsible investment strategies or into a quantitative analytics solution to identify a new range of signals. | 2 | | | |
| Australian Illegal Logging Prohibition Act | This regulation amends the Illegal Logging Prohibition Regulation 2012 to give effect to various sections of the Act. This includes prescribing regulated timber products, due diligence requirements for persons importing regulated timber products and due diligence requirements for persons processing raw logs into another form. | | | 1 | 1 |
| Bank of America | The Bank of America maintains a range of environmental policies related to climate change, forests, energy, environmental lending and beyond. Its policies are available to provide transparency and clarity about its position on important environmental issues | 1 | | | |
| Carbon Disclosure Project (includes Forest Disclosure) | In order to protect their investments, institutional investors must act to reduce this long-term strategic risk to their portfolios. The Carbon Disclosure Project (CDP)'s investor initiatives give investors access to a global source of year-on-year information that supports long-term objective analysis. This includes evidence and insight into companies' greenhouse gas emissions, water usage and strategies for managing climate change, water and deforestation risks. CDP investor initiatives – backed in 2013 by more than 722 institutional investors representing an excess of USD 87 trillion in assets – give investors access to a global source of year-on-year information that supports long-term objective analysis. A special project of CDP, run by the Climate Disclosure Standards Board (CDSB) is committed to the integration of climate change-related information into a corporation's mainstream financial reporting. CDP's forests program assists companies and their investors worldwide to understand and address their exposure to deforestation risks through their use of five agricultural commodities that are responsible for most deforestation – timber products, palm oil, soy, cattle products and biofuels. | 2 | | | 2 |

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Annex 8. Continued

| Tool | Description | INV | INC | PLC | PI |
|--|---|-----|-----|-----|----|
| CCB Standards | The Climate, Community & Biodiversity Alliance (CCBA) is a unique partnership of leading international NGOs that was founded in 2003 with a mission to stimulate and promote land management activities that credibly mitigate global climate change, improve the well-being and reduce the poverty of local communities, and conserve biodiversity. The CCBA brings together diverse stakeholders through a transparent and inclusive participatory process to develop standards that stimulate, identify and promote high-quality multiple-benefit land management activities. | | | 4 | |
| CEPI – Legal Logging Code of Conduct for the Paper Industry | Since 2005, CEPI has requested its members to adhere to the code for legal wood sourcing. | | | | 1 |
| Certified B Corporation | B Corporations are certified by the nonprofit B Lab to meet rigorous standards of social and environmental performance, accountability and transparency. | | 3 | | 3 |
| Citigroup ESRM (Environmental & Social Risk Management Policy) | Citi adheres to internationally recognized environmental and social principles and practices, as well as to its own set of environmental policies, statements and commitments. | 1 | | | |
| Clean Development Mechanism | The CDM allows emission-reduction projects in developing countries to earn certified emission reduction (CER) credits, each equivalent to 1 tonne of CO2. These CER credits can be traded and sold, and used by industrialized countries to meet a part of their emission reduction targets under the Kyoto Protocol. The mechanism stimulates sustainable development and emission reductions, while giving industrialized countries some flexibility in how they meet their emission reduction limitation targets. | | | 4 | |
| Co-Operative Bank Ethical Policy | The Co-operative Bank Ethical Policy covers five key areas: human rights; international development; ecological impact; animal welfare; and social enterprise. In line with our customers’ ethical concerns, we restrict finance to certain business sectors or activities, while at the same time committing to providing finance to those organizations making a positive community, social and environmental impact. | 1 | | | 1 |
| Collevecchio Declaration | BankTrack is a global network of nongovernmental organizations cooperating in the field of private banks and sustainability. The network consists of 40 organizations, including Greenpeace International, Rainforest Action Network and various national Friends of the Earth groups. The network was established in 2003, building upon initiatives that led to the release of the Collevecchio Declaration. The Declaration was the first civil society statement on the role of the financial sector and sustainability, and was signed by over 100 civil society organizations. | 1 | | | |
| CSRHub | CSRHub provides access to corporate social responsibility and sustainability ratings and information on 9143+ companies from 135 industries in 104 countries. Managers, researchers and activists use CSRHub to benchmark company performance, learn how stakeholders evaluate company CSR practices and seek ways to change the world | | | | 3 |
| Domini Global Investment Standards | Domini is an investment firm specializing exclusively in socially responsible investing. It manages funds for individual and institutional investors who wish to integrate social and environmental standards into their investment decisions. These standards guide Domini’s investments in the stocks and the fixed-income securities in its funds. Domini applies these standards to all its investments, believing it helps identify opportunities to simultaneously provide strong financial rewards while helping to create a more just and sustainable economic system with increased opportunities for all. | 2 | | | |

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Annex 8. Continued

| Tool | Description | INV | INC | PLC | PI |
|--|--|-----|-----|-----|----|
| Ecobanking Project | The Project's purpose is to improve the Latin American financial sector's competitiveness through better environmental management, environmental and social risk reduction, and by designing innovative financial products. | 1 | | | |
| Equator Principles | Equator Principles (EPs) is a risk management framework, adopted by financial institutions, for determining, assessing and managing environmental and social risk in projects and is primarily intended to provide a minimum standard for due diligence to support responsible risk decision-making. | 3 | | | |
| Equitics (includes Forum Ethibel) | The Advanced Sustainable Performance Indices (ASPI) Eurozone is the European index of reference of companies and investors wishing to commit themselves in favor of sustainable development and corporate social responsibility. VIGEO assesses and rates the performances of companies according to the Equitics methodology based on 38 criteria, divided into six key areas of corporate environmental, social and governance responsibility. | 3 | | | |
| Etica SGR | Etica SGR evaluates the socio-economic and environmental impacts of companies based on EIRIS data, applied to over 3000 stock companies. | 1 | | | |
| EU FLEGT | FLEGT stands for Forest Law Enforcement, Governance and Trade. The EU's FLEGT Action Plan was established in 2003. It aims to reduce illegal logging by strengthening sustainable and legal forest management, improving governance and promoting trade in legally produced timber. | | | 3 | 3 |
| EU Timber Regulation | Regulation (EU) No. 995/2010 of the European Parliament and of the Council of 20 October 2010 laying down the obligations of operators who place timber and timber products on the market – also known as the (Illegal) Timber Regulation – counters the trade in illegally harvested timber and timber products. | | | 3 | 3 |
| Fairtrade Standard for Timber for Forest Enterprises | A standard of the Fairtrade family, applicable in conjunction with FSC certification. | | | 4 | 4 |
| FairForest | FairForest provides a voluntary self-rating for forestry landscape projects using a ratings scale of 0–100%. With a broad spectrum of questions, the rating system is designed to be applicable to a wide range of forest project types. The rating focuses on the social and environmental impact as well as on the financial and management performance and furthermore considers the business environment and production risks. | | 2 | 2 | |
| FSC Forest Management and Chain of Custody Standards | FSC is a global, not-for-profit organization dedicated to the promotion of responsible forest management worldwide. Its diverse voices define best practices for forestry that address social and environmental issues. The membership consensus sets the FSC Principles and Criteria – the highest standards of forest management, which are environmentally appropriate, socially beneficial and economically viable. | | | 4 | 4 |
| FTSE4Good Index Series | Since 2001, the FTSE4Good Index Series has measured the performance of companies that meet globally recognized corporate responsibility standards. | 3 | 3 | 3 | 3 |
| GIIRS – Global Impact Investing Rating System | The Global Impact Investing Rating System (GIIRS) is a comprehensive and transparent system for assessing the social and environmental impact of developed and emerging market companies and funds with a ratings and analytics approach analogous to Morningstar investment rankings and Capital IQ financial analytics. | 2 | 2 | | 2 |
| Global Compact | The UN Global Compact is a strategic policy initiative for businesses that are committed to aligning their operations and strategies with 10 universally accepted principles in the areas of human rights, labor, environment and anti-corruption. | 1 | 1 | 1 | 1 |

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Annex 8. Continued

| Tool | Description | INV | INC | PLC | PI |
|--|---|-----|-----|-----|----|
| Goldman Sachs – Environmental Policy Framework | The Framework embodies Goldman Sachs’s commitment to developing effective market-based solutions to addressing climate change, ecosystem degradation and other critical environmental issues, and to creating new business opportunities that benefit the environment. | 1 | | | |
| GRI | The GRI Framework, including the Sustainability Reporting Guidelines (the Guidelines), sets out the Principles and Standard Disclosures, which organizations can use to report their economic, environmental and social performance impacts. | 3 | 3 | 3 | 3 |
| HSBC Forestry Policy | HSBC has had a forestry policy since 2004 and it reviews and updates its policies regularly. HSBC commissioned two independent reviews on its Forestry Policy in 2013. The first review was by ProForest into how HSBC’s policy standards compared to good practice and whether they could be improved. HSBC published the review on its website in March 2014, together with new Forestry and Agricultural Commodities Policies reflecting the recommendations. | 1 | | | |
| IFC Performance Standards | The Policy on Environmental and Social Sustainability defines IFC’s commitments to environmental and social sustainability. The Sustainability Framework consists of i) the Policy on Environmental and Social Sustainability, which defines IFC’s commitments to environmental and social sustainability; ii) the Performance Standards, which define clients’ responsibilities for managing their environmental and social risks; and iii) the Access to Information Policy, which articulates IFC’s commitment to transparency. The Performance Standards define clients’ responsibilities for managing their environmental and social risks. The Sustainability Framework is identical to that given for the Policy on Environmental and Social Sustainability. | 2 | 2 | 2 | 2 |
| ImpactAssets | ImpactAssets provides an Annual Showcase of Impact Investment Fund Managers. ImpactAssets is a nonprofit financial services company created to encourage and enable philanthropists and individual investors to engage in impact investing. | 2 | 2 | | |
| ING ESR Policy | ING is a global financial institution of Dutch origin, currently offering banking, investment, life insurance (NN Group) and retirement services. These Environmental and Social Risk Sector Policies of ING Groep N.V. (‘ING’) are published for the purpose of informing ING’s stakeholders and to give details of ING’s commitment and performance in the area of sustainability. | 1 | | | |
| IRIS | IRIS is a set of standardized metrics that can be used to describe an organization’s social, environmental and financial performance. IRIS’ independent and credible performance measures help organizations assess and report on their social performance | 1 | | | |
| ISO 14001 | The ISO 14000 family addresses various aspects of environmental management. It provides practical tools for companies and organizations looking to identify and control their environmental impact and constantly improve their environmental performance. | | | 4 | 4 |
| Lacey Act | Originally passed in 1900, the U.S. Lacey Act makes it a federal crime to poach game in one state with the purpose of selling the bounty in another. | | | 2 | 2 |
| Pacto Intersectorial por la madera legal | The agreement established for the period 2011–2015 has the objective to ensure the legal harvesting, processing, transport, trade and commercialization of wood products in Colombia. | | | 1 | 1 |
| PEFC | The Programme for the Endorsement of Forest Certification (PEFC) Scheme is an international nonprofit, nongovernmental organization dedicated to promoting sustainable forest management (SFM) through independent third-party certification. | | | 4 | 4 |
| Plan Vivo | Plan Vivo is a carbon standard supporting communities to manage their natural resources more sustainably, with a view to generating climate, livelihood and ecosystem benefits. Participants are rural smallholders and communities dependent on natural resources for livelihoods. Activities are implemented on smallholder or community land (owned or long-term user rights). | | | 4 | |

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Annex 8. Continued

| Tool | Description | INV | INC | PLC | PI |
|---|--|-----|-----|-----|----|
| PWC Forest Finance Toolkit | PricewaterhouseCoopers (PwC) and the World Business Council for Sustainable Development (WBCSD) jointly developed the Sustainable Forest Finance Toolkit. The toolkit is designed to support the financial sector in the sustainable financing of industries impacting forests. | 1 | 1 | | |
| RepRisk | RepRisk AG is a leading provider of dynamic ESG business intelligence on environmental, social and governance risks for an unlimited universe of companies and projects. | 3 | | | 3 |
| SA 8000 | The SA 8000 standard is the central document of the work done at Social Accountability International (SAI). It is one of the world's first auditable social certification standards for decent workplaces, across all industrial sectors. It is based on conventions of the ILO, UN and national law, and spans industry and corporate codes to create a common language by which to measure social compliance. | 4 | 4 | 4 | 4 |
| SD-KPI StanDarD 2010–2014 | Sustainable Development Key Performance Indicators (SD-KPIs) are the three most material environmental, social and governance (ESG) indicators for the expected business performance of different sectors. The SD-KPI Standards were developed by SD-M® GmbH in cooperation with the German Environment Ministry, accountants and global investors and analysts – the latter two of whom influence EUR 2 trillion in assets. | 1 | 1 | | 1 |
| The Gold Standard | The Gold Standard is an award winning certification standard for carbon mitigation projects and is recognized internationally as the benchmark for quality and rigor in both the compliance and voluntary carbon markets. | | | 4 | |
| Triodos Investment Strategy | Triodos Bank is one of the world's leading sustainable banks. Its mission is to make money work for positive social, environmental and cultural change. | 1 | | | |
| UN Principles for Responsible Investments | The United Nations-supported Principles for Responsible Investment (PRI) Initiative is an international network of investors working together to put the six Principles for Responsible Investment into practice. Its goal is to understand the implications of sustainability for investors and support signatories to incorporate these issues into their investment decision making and ownership practices. | 1 | | | |
| VCS | The Verified Carbon Standard is the world's leading voluntary greenhouse gas program, founded by a collection of business and environmental leaders who saw a need for greater quality assurance in voluntary carbon markets. | | | 4 | |
| WB Forests Strategy and Operational Policy | The World Bank's Forests Strategy and operational policy, approved by the Executive Board of Directors in October 2002, are based on three equally important pillars of economic development, poverty reduction and protection of global forest values. | 1 | | 1 | 1 |
| WBCSD Sustainable Procurement of Wood and Paper-based Products Guide and Resource Kit | The World Business Council for Sustainable Development guide and resource kit is a toolbox designed to assist corporate managers to make informed choices, understand and find the best advice on how to purchase forest-based products, be that paper for printing and packaging or wood for construction, or as office furniture. | 1 | 1 | | 1 |
| WWF Responsible Investment Guide | These guidelines form part of a set of background materials prepared by WWF for the Forest Investment Forum to be held at the World Bank headquarters in Washington DC during 22–23 October 2003. These guidelines draw on the experiences of WWF, Friends of the Earth, Forest Stewardship Council, World Bank, International Finance Corporation, Transparency International, International Labour Organization, United Nations, Profundo, ProForest, IUCN–The World Conservation Union, and the Global Reporting Initiative | 1 | 1 | | |

Annex 9. ESG reference document

| ID | Sections | Subsections | Issues |
|----|--|---|---|
| 1 | Legal and institutional framework | Legislation | Respect for locally and nationally applicable laws and regulations |
| 2 | | | Compatibility with international or national agreements signed by the hosting country |
| 3 | | | Conformity to labor and fee legislation (e.g. ILO standards) |
| 4 | | Illegal logging | Outside concession area |
| 5 | | | Protected areas |
| 6 | | | Without permits |
| 7 | | | Disrespect for billing regulation |
| 8 | | | Management plans |
| 9 | | | Bribes for concessions |
| 10 | | | Illegal accounting practices |
| 11 | | | Illegal transport or trade |
| 12 | | | Processing licenses |
| 13 | | | Prohibited species |
| 14 | | No illegal logging exists | |
| 15 | | Property | Existence of regulated concessions or licenses |
| 16 | Forest management | Forest management planning | Data and maps exist for the characterization of the forest estate (property, social and economic aspects, biophysical aspects) |
| 17 | | | Length of border lines of the protected forest area |
| 18 | | | Presence of forest management plan (includes Project Design Document) |
| 19 | | | Long-term commitment toward the management of forests |
| 20 | | | Diversification of forest products and services |
| 21 | | | The organization has the necessary organizational capacity |
| 22 | | Health and vitality of forest ecosystem | Planting techniques and forest operations planned and adapted to site conditions |
| 23 | | | Use of cultivation practices and prevention measures (maintenance of natural forest areas and strips) for limiting the spread of pests and diseases in planted forests) |
| 24 | | | Thinning and pruning in planted forests are carefully planned and implemented |
| 25 | | | Preplanning to ensure seed and seeding availability for plantation establishment |
| 26 | | | Existence of policies, procedures and measures for monitoring and/or prevention of forest damage caused by fire, diseases, pests, wind, water, climate change and infringements (e.g. illegal harvesting and illegal waste dumping) |
| 27 | | | Sustainable level of harvesting (including wild herbs and NTFPs) |
| 28 | | | Finance |
| 29 | Amounts of investments and/or expenditures in the forest sector and related sources | | |
| 30 | Existence of economic incentives, subsidies and/or tax exemptions | | |
| 31 | Amounts of investments in research, technology, development and education | | |
| 32 | Plan for resources requirements and allocation (financial, human, machinery, land) | | |
| 33 | Financial sources and investments in the forest sector guarantee the sustainability of management in the long term | | |

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Annex 9. Continued

| ID | Sections | Subsections | Issues | |
|----|--|--|---|--|
| 34 | Governance, disclosure & transparency | Governance | Organization legally identified | |
| 35 | | | Corporate governance management (e.g. president different from CEO, etc.) | |
| 36 | | | Organization is not suffering from negative publicity for environmental, social or ethical reasons | |
| 37 | | | Commodity-related risks are evaluated at board level | |
| 38 | | | Existence of an individual or committee responsible for environmental and social issues at board level | |
| 39 | | | Collaboration and/or support of environmental, voluntary and philanthropic nongovernmental initiatives and NGOs | |
| 40 | | | The organization is monitoring customers' satisfaction and integrating customers' feedback | |
| 41 | | | Workers own part of the company (cooperative, employee stock option plan, etc.) | |
| 42 | | | Stakeholders | Measure for the knowledge of (local) languages of forest management staff |
| 43 | | | | Existence of cooperation between involved parties from the forestry sector and the agricultural sector |
| 44 | | | | Existence of grievance mechanisms to resolve conflicts and complaints between stakeholders |
| 45 | | | | Stakeholder engagement results are public |
| 46 | | | | Communication between stakeholders is efficient |
| 47 | Disclosure and reporting | Forest management plan publicly accessible (including Project Design Document – PDD) | | |
| 48 | | Periodic reports on forest management practices and impacts are provided by the forest manager and are publicly accessible | | |
| 49 | | Publication of rights toward the forest area | | |
| 50 | | Public disclosure of the use of materials that contain any of the forest risk commodities (timber, soy, palm oil, cattle products, biofuels) | | |
| 51 | | Reporting on waste, water and soil | | |
| 52 | | Public reporting on climate change and emissions levels | | |
| 53 | | Publicly accessible environmental, climate change and human rights policies | | |
| 54 | | Reporting on supplier respect for labor standards | | |
| 55 | | Reporting of transactions that reached financial close | | |
| 56 | | Community and employees | Local communities and indigenous inhabitants | Social impact assessment |
| 57 | Amounts of investments from the local population in the forest sector | | | |
| 58 | Existence of the right to education for the local and/or indigenous population | | | |
| 59 | Management activities and use of traditional knowledge assessment and authorization through free, prior and informed consent (FPIC) of the indigenous peoples or local communities | | | |
| 60 | Forest management not threatening/diminishing resources (including food) or tenure rights of indigenous people | | | |
| 61 | Benefits sharing system should be in place regarding timber, NTFPs and services | | | |
| 62 | Resettlements, if unavoidable, are carried out with FPIC and compensatory measures are in place | | | |
| 63 | Prevention of encroachment | | | |
| 64 | Strategy to protect the lives and properties of local inhabitants from fire in plantations | | | |
| 65 | The project is reducing poverty | | | |
| 66 | Forest management pays sufficient attention to cultural, recreational, spiritual and archaeological values | | | |

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Annex 9. Continued

| ID | Sections | Subsections | Issues |
|----|-------------|---------------------------------------|--|
| 67 | | | Water supplies local community |
| 68 | | | Support of Universal Declaration of Human Rights (UDHR) and/or human rights due diligence |
| 69 | | Workers | Compensation and benefits to increase workers' loyalty, long-term employment and relations |
| 70 | | | Absence of discrimination (sex, language, ethical, etc.) |
| 71 | | | Training of employees on human rights policy |
| 72 | | | Workers' freedom of association |
| 73 | | | Absence of forced labor, child labor, etc. |
| 74 | | | Internal environmental engagement practices (policy, training of workers, etc.) |
| 75 | | | Operational guidelines and training for health and safety procedures and equipment of forestry workers (including emergency training) |
| 76 | Environment | Environmental impacts | Sustainability policies and targets for forest risk commodities exist |
| 77 | | | Environmental impact assessment (including emergency, hazards and risks) |
| 78 | | | Projects are categorized based on A, B and C risk levels |
| 79 | | | Appropriate site preparation operations to minimize negative impacts are planned and implemented and their long-term effects are evaluated |
| 80 | | | Soil protection regulations and measures against erosion & compaction are implemented (e.g. ploughing along land contour with a 10% – 5° gradient) |
| 81 | | | Impacts of infrastructure should be minimized |
| 82 | | | The natural water cycle is not disturbed or is restored (includes riparian buffer zones along water bodies) |
| 83 | | High conservation value forests | Forest areas that contain globally, regionally or nationally significant concentrations of biodiversity (this includes: protected areas, rare or threatened species, endemic species and seasonal concentrations of species) |
| 84 | | | Globally, regionally or nationally significant large landscape-level forests |
| 85 | | | Forest areas that are in or contain rare, threatened or endangered ecosystems |
| 86 | | | Forest areas that provide basic services of nature in critical situations (this includes: protection of watersheds, and protection against erosion and destructive fire) |
| 87 | | | Forest areas fundamental to meeting basic needs of local communities |
| 88 | | | Forest areas critical to local communities' traditional cultural identity |
| 89 | | Plantation design and natural forests | Primary forests and wetlands are conserved |
| 90 | | | Minimum percentage of project area (e.g. 10%) is protected for biodiversity and ecosystems |
| 91 | | | Protection of World Heritage sites |
| 92 | | | Planted forests are only allowed when they lower the pressure on existing natural forests and when they are not replacing them, and/or when they create socio-economic benefits without significant negative impacts of any kind |
| 93 | | | Objectives of planted forests are clearly described in the planning |
| 94 | | | Careful selection of sites, species and genotypes adapted to local conditions |
| 95 | | | Origin of seed, plants, cuttings identified and certified |
| 96 | | | Diversity in composition (size, spatial distribution, number of species and genetics, ages, structures) is preferred |
| 97 | | | Scale and layout of planted forests consistent with the patterns of natural landscape forest stands |
| 98 | | | Genetically modified organisms (GMOs) are not used |

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Annex 9. Continued

| ID | Sections | Subsections | Issues | |
|-----|--|--|---|---|
| 99 | | Chemicals | The use of biological control agents is strictly regulated | |
| 100 | | | Degree of use of environmentally friendly control agents and organic fertilizers | |
| 101 | | | Fuel, oil, toxic substances and waste are properly stored/disposed | |
| 102 | | | Existence and implementation of regulations for the use of fertilizers | |
| 103 | | | Long-term consequences of fertilization, pest control and disease management are assessed in planted forests | |
| 104 | | | Presence of a person responsible for the control of pests and diseases | |
| 105 | | | Environmental management | Noise of processing plant (e.g. mill) in proximity to human settlements |
| 106 | | | | Reduction of the environmental impacts of the organization (energy efficiency, use of recycled materials, Leadership in Energy and Environmental Design (LEED) certification, etc.) |
| 107 | | | | Locally sourced products/energy |
| 108 | | Use of FSC-certified paper | | |
| 109 | | The organization is not respecting/has violated the Convention on Biological Diversity (COD) | | |
| 110 | Climate change ecosystem services | Carbon credits | Carbon credits and property rights are clearly defined | |
| 111 | | | Carbon project approval from relevant authorities | |
| 112 | | | Baseline is estimated | |
| 113 | | | Baseline is demonstrated | |
| 114 | | | Calculation of leakage | |
| 115 | | | Inclusion of permanence (e.g. buffer) | |
| 116 | | | Estimation of net greenhouse gas emissions and removals | |
| 117 | | | Monitoring plan | |
| 118 | | | Double counting is addressed | |
| 119 | | | Greenhouse gases | |
| 120 | An organization policy recognizing the role of forests in climate change mitigation exists | | | |
| 121 | Incentives for life cycle assessment | | | |
| 122 | The company has a carbon emissions reduction and compensation plan through the forest sector | | | |
| 123 | Ecosystem services | | Climate change is affecting the ability of the organization to produce, source or supply commodities that are at risk | |
| 124 | | | Biodiversity offsetting | |
| 125 | | | Actively involved in the development of markets for ecosystem services, CO ₂ , sustainable products, etc. | |
| 126 | Supply chain and traceability | Traceability | A system is in place to ensure that timber coming from areas in legal dispute is not sold as certified until conflict is solved | |
| 127 | | | Sourcing from cooperatives and small-scale producers | |
| 128 | | Supply chain | | Supplier using third-party independently certified timber |
| 129 | | | | Supplier aware of environmental requirements |
| 130 | | | | A risk assessment for forest risk commodities used by suppliers |
| 131 | | | | Supplier management to avoid using illegally sourced wood materials |
| 132 | | | | Supplier calculating, reducing and compensating GHGs |
| 133 | | | | Supplier management to avoid using material sourced from high conservation value forests |
| 134 | | | | Supplier respecting labor standards |

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Annex 9. Continued

| ID | Sections | Subsections | Issues |
|-----|----------|---|---|
| 135 | | | Supplier management to avoid using material sourced from genetically modified organisms |
| 136 | | | Action to increase the uptake of sustainably produced materials up and down the organization (includes price premium) |
| 137 | | International sustainability standards | Fairtrade standards |
| 138 | | | Equator principles |
| 139 | | | IFC Performance Standards (1–8) |
| 140 | | | Global Compact |
| 141 | | | World Bank Group Environmental, Health and Safety Guidelines (HE'S Guidelines) |
| 142 | | | Carbon Disclosure Project (CDP) |
| 143 | | | Third-party certification schemes (e.g. FSC Certification) for the production or sourcing of forest risk commodities |
| 144 | | | ISO 14001 |
| 145 | | | SA8000 |
| 146 | | | UN Principles for Responsible Investment |
| 147 | | | B-Corp certified |
| 148 | | | IRIS system |
| 149 | | | UNDP Millennium Development Goals (MDGs) |
| 150 | | | World Heritage Convention (WHC) |
| 151 | | OECD Guidelines for Multinational Corporations | |
| 152 | | UN Convention Against Corruption | |
| 153 | | Verification of Legal Origin & Verification of Legal Compliance | |
| 154 | | Global Reporting Initiative (GRI) | |
| 155 | | AccountAbility (AA1000) | |

CIFOR Occasional Papers contain research results that are significant to tropical forest issues. This content has been peer reviewed internally and externally.

Investments in industrial-scale planted forests have grown exponentially in recent years and are included into investment portfolios for various reasons (e.g. diversification, risk mitigation, attractive returns). The rapid growth of planted forests may incur negative social and environmental impacts. Thus, investment companies and fund managers are increasingly interested in using sustainable and responsible investment (SRI) tools (e.g. standards, guidelines, and codes of conduct). However, a classification system for SRI tools in the field of planted forests still lacks consensus.

The present study therefore identifies, describes and analyzes SRI tools for planted forests and suggests a framework for the evaluation of their capacity to address environmental, social and governance (ESG) issues.

Four key findings emerged:

- More than 50 SRI tools are used to categorize investments in planted forest. The most common SRI tools used are management standards, bank investment policies and investment rating systems.
- An ESG Reference Document allows a quality assessment of the SRI tools to be undertaken. The most important issues highlighted in SRI tools are: legality, environmental impact and third-party certification. Conversely, issues such as poverty alleviation, minimum percentage of protected areas and prevention of encroachment are not properly addressed.
- SRI tools with the highest overall performance originate from the Forest Stewardship Council (FSC), Gold Standard, RepRisk, Certified B Corporation and FairForest and also include the WWF Responsible Investment Guide and the FTSE4Good Index Series.
- It is important that planted forests are evaluated either through specific SRI tools, or at least with appropriate consideration in order to properly address risk factors such as improvement of livelihoods and the prevention of encroachment and conflicts.



RESEARCH
PROGRAM ON
Forests, Trees and
Agroforestry

This research was carried out by CIFOR as part of the CGIAR Research Program on Forests, Trees and Agroforestry (CRP-FTA). This collaborative program aims to enhance the management and use of forests, agroforestry and tree genetic resources across the landscape from forests to farms. CIFOR leads CRP-FTA in partnership with Bioversity International, CATIE, CIRAD, the International Center for Tropical Agriculture and the World Agroforestry Centre.

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CIFOR advances human well-being, environmental conservation and equity by conducting research to help shape policies and practices that affect forests in developing countries. CIFOR is a member of the CGIAR Consortium. Our headquarters are in Bogor, Indonesia, with offices in Asia, Africa and Latin America.

