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Influence of corporate responsibility on financial return in forest plantations: case studies from South America, South East Asia and Africa

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LIST OF ABBREVIATIONS

AUM	Assets Under Management
CCB	Climate Community and Biodiversity Standards
CDM	Clean Development Mechanism
CSR	Corporate Social Responsibility
DAC	OECD Development Assistance Committee
EFAMA	European Fund and Asset Management Association
EIB	European Investments 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 and Sustainable Investment Alliance
HNWIs	High net worth individuals
IBA	Indústria Brasileira de Árvores (Ibá)
ILO	International Labour Organization
IOs	International Organizations
IRR	Internal Rate of Return
JI	Joint Implementation
LDCs	Less developed countries
MR%	Mitigated Risk %
MR25	Mitigated Risk 25
MS	Measurability
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
PEFC	Programme for Endorsement of Forest Certification Schemes
PES	Payments for Environmental Services
PRI	Principles for Responsible Investment
R	Risk
R25	Risk 25
RBV	Resource-Based View
REDD+	Reducing Emissions from Deforestation and Forest Degradation
RF	Risk Field
RR	Residual Risk%
RR25	Residual Risk 25
RRD	Risk Rank Desk
RRF	Risk Rank Field
SIF	Sustainable Investment Forum
SRI	Sustainable and Responsible Investments
SRI%	Sri Impact %
T-REITs	Timberland Real Estate Investment Trusts
TIMOs	Timber Investment Management Organizations
TNCs	Transnational corporations
UN	United Nations
UNFF	United Nation Forum on Forests
UNPAN	United Nations Public Administration Network
US	United States of America
USD	United States Dollar
VSS	Voluntary Sustainability Standards
WRI	World Resource Institute

GLOSSARY

TERMINOLOGY	DEFINITION	*
Corporate Social Responsibility (CSR)	A concept whereby companies integrate social and environmental concerns in their business operations and in their interactions with their stakeholders on a voluntary basis. CSR in recent years is expanding outside the corporate sector including all type of organizations and taking the name of Social Responsibility. CSR includes a wide range of voluntary and regulative instruments, among which Sustainable and Responsible Investments	1
Emerging markets	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	2
Environmental, Social and Governance (ESG)	Non-financial issues/risks/factors/indicators included into the investment process to screen investments	3
Institutional investor	Investors, such as a pension funds, insurance companies, banks, which generally have substantial assets and experience in investments, and pool and invest capital on behalf of corporations or private individuals. Include also mutual funds, holding companies, brokerages, and other funds. Foundations, endowments and family offices are also very often grouped in and treated under this category	4
Investment company	A firm that invests the funds of investors in securities appropriate for their stated investment objectives in return for a management fee. Include also Investment manager or Asset Management Company	3
Investor	One who places capital into a project or business with the intent of making a profit from the initial placing of capital	3
Mutual fund	Mutual funds are pools of money that are managed by an investment company. A pool of liquidity that an investment company places in various securities and/or derivatives with the goal of producing a certain return.	3
Private equity	Investors and funds that make investments directly into private companies or conduct buyouts of public companies that result in a delisting of public equity.	3
Retail investor	An investor who deals in securities only occasionally, especially dealing in small quantities. Include Individual Investors, Private Investors, Odd-lotter and small investors	3
SRI strategies	Different approaches adopted by investors and/or investment companies to implement SRI. The strategies of SRI are referring to portfolio management activities.	5
SRI tools	Set of common tools (standards, guidelines, codes, etc.) to assure the integration of ESG issues along the investment process. Examples are forest certifications schemes, codes of conduct and investment rating systems	6
Sustainable and Responsible Investments (SRI)	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 instruments to promote CSR	5
T-REITs	Real Estate Investment Trusts (REITs) are private or public company owning and operating income-producing real estate. Historically REITs manage apartment buildings, shopping centres, offices, hotels or warehouses, but recently they started to pay growing attention to timberland assets (Timberland Real Estate Investment Trusts or T-REITs)	7
TIMOs	Timber Investment Management Organizations (TIMOs) are private companies acting as investment managers with the primary aim to maximize the growth in the value of timberland assets. The TIMO vehicle suits many institutional investors, who may not want to directly buy and manage planted forests	7

*Source: ¹ European Commission, 2011; ² www.fas.usda.gov; ³ www.investopedia.com; ⁴ Davis & Steil, 2004; ⁵ EUROSIF, 2012a; ⁶ own elaboration; ⁷ Pettenella & Masiero, 2014.

EXECUTIVE SUMMARY

Key words: investments, planted forests, sustainability, certification.

Investments in planted forests in emerging markets are increasing and investors are looking for Sustainable and Responsible Investments (SRI) to integrate Environmental, Social And Governance (ESG) into the investment process.

This study is presenting a first attempt to develop a framework to evaluate the ESG performance of investments in planted forests and to identify relations between the use of SRI tools and the financial performance of investments in planted forests.

The analysis of 121 investments in planted forests allowed the identification of 339 organizations and 50 SRI tools (e.g.: management and investment standards, investment rating) operating with investments in planted forests in emerging markets. The analysis of the 50 SRI tools resulted in the definition of a ESG Reference Document including 155 issues. These issues were organized into an ESG Risk Assessment and have been tested in 12 case studies evenly distributed between Uganda, Cambodia and Vietnam.

The results suggest that 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). The majority of the SRI tools have a broad sectoral approach and are managed by business organizations. Investors are using more than 30 SRI tools but these are characterized by a low level of control such as signature and/or participation or at the most a conformity declaration. On the contrary plantation companies are using less instruments but with top level of control such conformity assessment and certification.

Aspects related to “Legal and Institutional framework” and “Environment” are the most represented inside SRI tools. On the contrary aspects such as “Minimum percentage of protected areas”, “Poverty reduction” and “Prevention of encroachment” are not only the less frequent issues but also the less controlled issues by SRI tools.

The Gold Standard and the Forest Stewardship Council are the SRI tools with the highest performance among the 50 SRI tools analysed.

The ESG Risk Assessment allows to identify the most important 25 issues and reveals that SRI tools are focusing on issues that on-the-ground are not the major risk sources. This is the case of “Third party certification” and “High Conservation Value Forests” (HCVFs). Few exemptions where SRI tools are properly identifying the major risks are “Tenure rights”, “Health and safety of workers” and “Social impact assessment”. Climate change impacts, long term financial sustainability, poverty reduction and encroachment are ranked as the most dangerous sources of risk across the 12 case studies.

SRI tools are positively influencing the risk mitigation, accounting for a percentage of risk mitigation that ranges from 34.31 till 60.63%. FSC certification was often reported by projects’ stakeholders as a key instrument to mitigate risk of investments in planted forests.

RIASSUNTO

Parole chiave: investimenti, piantagioni forestali, sostenibilità, certificazione.

Gli investimenti in piantagioni forestali nei mercati emergenti sono in aumento e gli investitori sono alla ricerca di Investimenti Sostenibili e Responsabili (SRI) per integrare le problematiche Ambientali, Sociali e di *Governance* (ESG) nel processo di investimento.

Questo studio presenta un primo tentativo di sviluppo di un sistema di valutazione della *performance* in termini di ESG degli investimenti in piantagioni forestali e di identificare le relazioni tra l'uso di strumenti di SRI e il rendimento finanziario degli investimenti.

L'analisi di 121 investimenti in piantagioni forestali ha permesso l'identificazione di 339 organizzazioni e 50 strumenti di SRI (es.: *standard* per la gestione delle piantagioni e degli investimenti, strumenti di *rating* degli investimenti) che operano con investimenti in piantagioni forestali nei mercati emergenti. L'analisi dei 50 strumenti di SRI ha portato alla definizione di un Documento di Riferimento ESG che comprende una lista delle 155 problematiche riscontrabile nel processo di investimento. Queste problematiche sono state organizzate in un *ESG Risk Assessment* e sono state testate in 12 casi di studio distribuiti uniformemente tra Uganda, Cambogia e Vietnam.

I risultati suggeriscono che i strumenti di SRI più comunemente utilizzati sono gli standard per la gestione delle piantagioni (es.: FSC), le politiche di investimento delle banche (es.: ABN AMRO *Forest and Policy Plantation*) e I sistemi di *rating* degli investimenti (es.: Fairforest). I strumenti di SRI hanno per lo più un ampio approccio settoriale e sono gestiti da organizzazioni con finalità di lucro. Gli investitori utilizzano più di 30 strumenti di SRI, ma questi sono caratterizzati da bassi livelli di controllo come la firma e/o la partecipazione o la dichiarazione di conformità. Al contrario, le aziende forestali utilizzano un numero inferiore di strumenti ma questi sono caratterizzati da sistemi di controllo di livello superiore, come ad esempio la valutazione della conformità e la certificazione.

Le problematiche relative ad "Aspetti legali ed istituzionali" e all' "Ambiente" sono le più frequenti all'interno degli strumenti di SRI. Al contrario, le problematiche quali "Percentuale minima di aree protette", "Riduzione della povertà" e "Prevenzione dell'*encroachment*" non solo sono meno frequenti, ma risultano essere quelle meno controllate dagli strumenti di SRI.

Il *Gold Standard* e il *Forest Stewardship Council* sono gli strumenti SRI con le migliori prestazioni tra i 50 strumenti di SRI analizzati.

Il *ESG Risk Assessment* applicato nei 12 casi studio ha permesso di identificare le 25 problematiche più importanti e rivela come gli strumenti di SRI si concentrino su problematiche che in termini operativi non sono le principali fonti di rischio. Questo è per esempio il caso della "Certificazione di parte terza" e delle "Foreste ad Alto Valore di Conservazione" (HCVFs). Fanno eccezione le problematiche legate a "Diritti di proprietà", "Salute e salvaguardia dei lavoratori" ed "Valutazione dell'impatto Sociale" che sono largamente trattate dai strumenti di SRI. I fattori di rischio maggiori riscontrati nei 12 casi studio sono gli impatti dei cambiamenti climatici, la sostenibilità finanziaria, la riduzione della povertà e l'*encroachment*.

L'utilizzo degli strumenti di SRI permette di aumentare la mitigazione del rischio fino a valori tra il 34.31 ed il 60.63%. I *stakeholders* intervistati dichiarano che la certificazione FSC è lo strumento chiave per la riduzione dei rischi negli investimenti in piantagioni forestali.

1 INTRODUCTION

The area of planted forests is increasing worldwide representing nowadays about one third of all industrial roundwood production (Jürgensen *et al.*, 2014). Since 1990 planted forests have been steadily increasing, by 4.3 million ha/year, mostly in tropical and sub-tropical countries in Asia and South America (FAO, 2010). Planted forests cover an area of roughly 264 million ha, corresponding to roughly 7% of the global forest area. Most of the studies foreseeing planted forests taking over a range between 75 to 100% of the industrial timber production by 2050 (Carle & Holmgren, 2008; Evans & Turnbull, 2004; Sohngen, Mendelsohn, & Sedjo, 1999).

While traditionally the production of wood fibres and biomass for energy have been the major reasons for the expansion of planted forests, nowadays planted forests are also gaining advocacy for the provision of environmental services¹ as climate change mitigation and adaptation under the Reducing Emission from Deforestation and Forest Degradation (REDD+) schemes (UNFCCC, 2010), the Clean Development Mechanisms (CDM), the Joint Implementation (JI), the voluntary carbon markets and the growing markets for biodiversity protection and water conservation (Hamilton *et al.*, 2010; Stanton *et al.*, 2010; Scheyvens & Lopez-Casero, 2009).

The establishment of planted forests requires considerable amount of resources. In fact, the growing area of planted forests is intrinsically related to the investment and finance sector. Since the 1980s there has been a significant rise in the ownership of planted forests around the world by both institutional and retail investors (FAO, 2012; Indufor, 2012; Toppinen & Zhang, 2010). This development commenced in the United States (US) and is rapidly turning toward emerging markets traditionally characterized by forest assets with relatively higher risk-return profiles. At present, the investor capital placed in timberland² is USD 70-80 billion, of which over 70% is in the US (UNFF, 2012).

While the importance of products and services delivered from planted forests is augmenting (Carle & Holmgren, 2008), supporting the idea that planted forests generate economic, social and environmental benefits (Boyle, *et al.*, 1999; Bull *et al.*, 2006; UNEP, 2009), on the other side there are widely shared concerns about the environmental and social negative impacts of planted forests as biodiversity loss, soil erosion and degradation, water cycle disruption, pests and diseases, conversion of natural forests and abuses of local and indigenous communities (Bowyer *et al.*, 2005; Cossalter & Pye-Smith, 2003; Lawson *et al.*, 2014; Morrison & Bass, 1992; Van Bodegom *et al.*, 2008).

The concern over negative impacts of planted forests becomes alarming when thinking at:

- increasing market share of retail investors, less likely to care for social and environmental impacts than public investors (Simula, 2008);
- the internationalization process, with planted forests expanding in tropical and sub-tropical countries (sometime referred as “emerging markets”), characterized by poor law enforcement and fragile social situations compared to traditional investments areas as US (Voegtlin *et al.*, 2011; Zhang *et al.*, 2014);
- the dominant role of productive planted forests, characterized by better financial performances but higher social and environmental risks.

¹ When mentioning environmental services this document refers to Payment for Environmental Services (PES) as defined by Wunder (2007).

² Timberlands include both natural and planted forests.

Concerning the latter, this research will only consider investment in productive planted forests and, in particular, intensively managed Fast Growing and High Yielding (FGHY) plantations as defined by Indufor (2012). These kinds of planted forests deserve specific attention due to their potentially lucrative financial performances but also because of their potential for social and environmental damages.

The use of Sustainable and Responsible Investment strategies in plantation FGHY investments may have different impacts on financial benefits and on the impacts to local communities and the environment that are worthwhile to be analysed.

1.1 The problem: making sense of sustainable investments

Timberland investment companies and funds are increasingly using Sustainable and Responsible Investment strategies (EUROSIF, 2010; UNECE/FAO, 2014). In practice they are using SRI tools (standards, guidelines, codes, etc.) to assure the integration of Environmental, Social and Governance risks in the investment process, hence to assure the responsible management of planted forests.

The concept of SRI is constantly evolving, as new financial service providers develop methods and approaches to include ESG issues into their business-as-usual scenarios. Numerous institutional and retail organizations are demonstrating a significant interest in ethical, green, sustainable, and (socially) responsible investments due to the media and society pressure or in some cases on a voluntary basis, as a result of new commitments by the shareholders and top managers or to have more effective marketing strategies. As a result the adoption of SRI strategies has been constantly growing in the last decades (EUROSIF, 2014).

At present there is no agreed classification system for Sustainable and Responsible Investments in the forestry sector. For investors this represents a challenge to understand the various product offerings. For providers (asset managers), this also represents a challenge as different national markets may require various product strategies to be deployed depending on local investor preferences (Sievänen *et al.*, 2012). Using the Influential Literature Analysis (ILA) on responsible investments, Hoepner & McMillan (2009) discovered that not only responsible investments is an under-theorised field of research, but also that environmental, social and governance (ESG) performances need to be further investigated in order to be associated with financial performances.

In fact, financial return is a key aspect and leading driver for an investor. Hence the problem includes also the need of understanding how SRI strategies affect the financial return of investments in planted forests. Comparing business as usual (BAU) investments with investments entailing the use of SRI strategies could address the issue. So far the problem has not been fully investigated and there are no guidelines for institutional and retail investors in order to positively enhance their financial return from forest plantations investments through the use of SRI strategies.

1.2 Objectives of the study

In the light of the increasing interest in planted forests investments and the fact that the effects of SRI tools on the financial performances of planted forests investments have not been yet investigated and addressed, this study has the following objectives (Table 1.1).

Objective 1: Set a framework for the evaluation of the Environmental, Social and Governance (ESG) performance of planted forests investments.

1A) What are key characteristics of planted forests investments?

1B) Which Sustainable Responsible Investment tools are normally used?

1C) Which SRI tools have the best ESG performance?

Objective 2: Identify relations between SRI tools and financial performance

2A) What are the impacts of SRI tools on risks in planted forests?

2B) Which are the SRI tools that maximize financial and socio-economic benefits?

1.3 Research structure

The study has three major steps (Picture 1.1. and Table 1.1.):

1. Background analysis to structure the Investment Stakeholders Database, the SRI tools database and provide the basic knowledge for the case studies selection process;
2. Definition of the SRI classification system based on desk analysis of ESG performance of SRI tools;
3. Field testing of the SRI classification system through multiple case studies.

After the Introduction, chapter 2 provides the research background with an up-to-date analysis of planted forests trends, followed by a review of planted forests investments and the analysis of the theory on SRI applied to the forestry sector.

Chapter 3, Material and Methods, describes the research design and methodological approaches. The research approach consists in the conceptualization of a system to classify planted forests investments, the construction of the forest stakeholders and SRI tools databases to end with a system to classify investments based on desk quality analysis. The field work is based on the Environmental and Social Risk Assessment protocol (chapter 3.5), the selection of multiple case studies (chapter 3.6) and the analysis of financial performances (chapter 3.7). Finally, chapter 3.8 reports the study limitations and the strategies adopted to mitigate them.

The Results and discussion (chapter 4) are also divided into two sections: the results generated by the desk analysis with the description of the SRI stakeholders, infrastructures, tools and quality comparison. The results of the field testing with multiple case studies are also reported. Conclusions are reported in chapter 5.

Table 1.1 - The research framework.

OBJECTIVES	QUESTIONS	DATA NEEDS	SOURCES OF INFORMATION	METHODOLOGY	OUTPUTS	CHAPTERS
OBJECTIVE 1: Set a framework for the evaluation of the Environmental, Social and Governance (ESG) performance of planted forests investments	1A What are key characteristics of planted forests investments?	- Statistical trends - Investment data	- Literature	- Literature review	- Plantation data - Investment data	BACKGROUND ANALYSIS Chapter 1 & 2
	1B Which Sustainable Responsible Investment (SRI) tools are normally used?	- Actors involved - SRI Infrastructures & Networks - SRI tools trends & preference	- Literature - Databases - Key informants	- Stakeholder mapping - Investments analysis - Companies and key informants interviews	- SRI stakeholders database - SRI tools database	SRI CLASSIFICATION SYSTEM Chapter 4
	1C Which SRI tools have the best ESG performance?	- SRI tools contents	- SRI tools - Key informants	- Desk gap analysis - Key informant interviews	- SRI tools quality classification	
OBJECTIVE 2: Identify relations between SRI tools and financial performance	2A What are the impacts of SRI tools on risks in planted forests?	- Country risk Indicators - Project specific risks indicators	- Documental Desk analysis - Field visit	- Environmental Social Risk Assessment - Multiple case studies	- Risk mitigation matrix	FIELD TESTING Chapter 4
	2B Which are the SRI tools that maximize financial and socio-economic benefits?	- Financial Indicators for single project	- Company investment questionnaire	- Questionnaire & semi structured interview	- Matrix of financial return & use of SRI strategies	

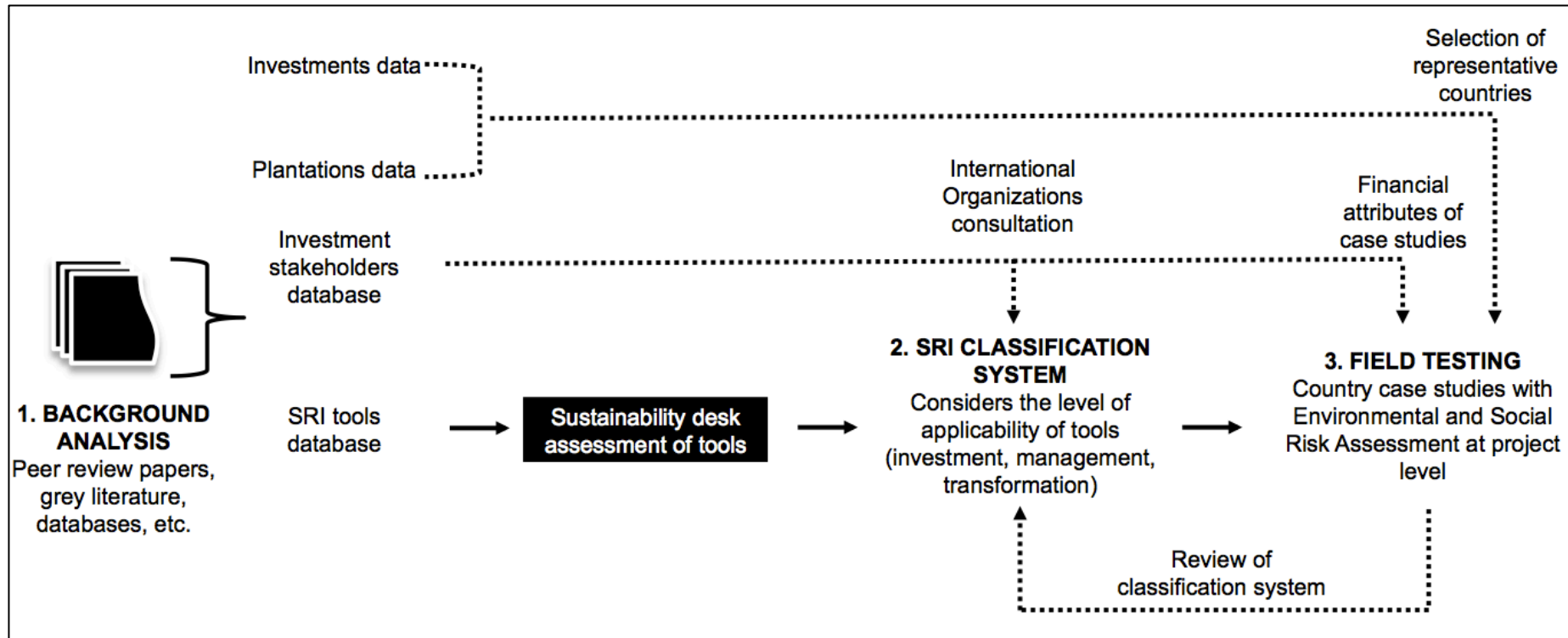


Figure 1.1 – Research design.

2 RESEARCH BACKGROUND

In this chapter the following topics are presented:

- An up-to-date picture of the trends in planted forests, with a particular focus on the expansion of planted forests in emerging markets (Chapter 2.1);
- An overview of definitions, trends and historical development of investments in planted forests (Chapter 2.2);
- The theoretical background concerning CSR and its application at the financial level with the emerge of the concept of SRI (Chapter 2.3);
- The strategies of inclusion of Environmental, Social and Governance (ESG) aspects in the investment process (Chapter 2.4); and
- A review of the existent framework for the application of SRI to the planted forests sector (Chapter 2.5).

2.1 Forest plantations trends: an update

Planted forests although “human induced” are considered forest³. According to the Food and Agriculture Organisation (FAO, 2010), the **definition of a planted forest** is an area: “...Composed of trees established through planting and/or through deliberate seeding of native or introduced species. Establishment is either through afforestation on land that until then was not classified as forest, or by reforestation of land classified as forest, for instance after a fire or a storm or following clear-felling.”

Planted forests can have predominant productive or protective functions. Productive planted forests aim at wood and/or non-timber forest products (e.g.: rubber) production, whilst protective planted forests aim mostly at the provision of services such as protection of soil and water, rehabilitation of degraded lands, combating desertification, etc. Productive planted forests cover an area of roughly 200 million ha, corresponding to roughly 7% of the global forest area and 76% of the overall area of planted forests (FAO, 2006). Since 1990 planted forests have been steadily increasing, by 4.3 million ha/year, mostly in Asia and South America. Most of the studies are foreseeing planted forests taking over a range between 75 to 100% of the industrial timber production by 2050, hence substituting the role of natural forests. In 2009 wood products from planted forests represented almost 3% of worldwide trade. Based on Indufor (2012) definition, Fast Growing and High Yielding (FGHY) plantations as well as intensively managed forests account for an area of 54.3 million ha. Indufor classification does not account for non-industrial fuelwood and rubber wood plantations. The countries with the largest area of planted forests are the United States of America, China and Brazil, each having over 5 million ha of planted forests. Productive planted forests are usually based on single exotic species and are intensively managed, tending to generate higher financial returns but also more negative environmental impacts compared to protective planted forests. The most common species grown on productive planted forests are *Pinus spp.*, followed by *Eucalyptus spp.*

Based on the recent FAO study (FAO, 2014), in many developing countries expansion of the wood-based manufacturing and export sectors has only be possible

³ The Food and Agriculture Organisation (FAO) define forests as such: “Land spanning more than 0.5 hectares with trees higher than 5 meters and a canopy cover of more than 10 percent, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use”.

because of the raw material supply from plantations. The top 5 producers of industrial roundwood from planted forests in 2012 were Brazil, the United States of America, China, India and Chile. FAO (2014), concludes that all the recent researches agree on planted forests providing between one third and half of the global industrial roundwood production for an overall annual volume of 500–800 million m³ of industrial roundwood. In terms of property, planted forests are 50% owned by governments, 18% by private corporations and 32% by private smallholders (Indufor, 2012). In the future ownership and tenure structure of planted forests will be more diversified (Indufor, 2012).

2.2 Investments in forest plantations

Investors typically place capital into a project or business with the intent of making a profit from the initial placing of capital. Investors are traditionally categorised into institutional investors and retail investors. Investors can range from pure profit-oriented to pure development-oriented (Deweese *et al.*, 2011; Elson, 2012; Macqueen, 2013; Simula, 2008). At least three categories of investors can be identified based on the degree of expected returns from investments:

- value investors, seeking a real return on capital, focusing on asset investments; they do expect the real value of underlying capital to increase, or at least not fall over the medium to long term;
- social investors, focusing on investments pursuing goals connected with the welfare conditions of the local communities, not primarily linked to the requirement to earn a high return on the invested capital;
- conservation investors, using their capital with the priority aim to protect or restore a specific landscape, habitat, or species.

This research addresses the needs of value investors - both institutional and retail.

2.2.1 Historical overview

Timberland investments originated in the USA in the early 1980s, when a significant growth in the ownership of planted forests by institutional investors was observed (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 land owners) to financial investors, in particular institutional investors (Toppinen & Zhang, 2010). The phenomenon leads to the uptake of Timberland Investment Management Organizations (TIMOs) and Timberland Real Estate Investment Trusts (T-REITs). In the 1990s the number of TIMOs and their assets under management in the US increased significantly from around USD 1 billion to USD 10-12 billion (Zinkhan *et al.*, 1992). At the beginning of the 2000s TIMOs started to expand in emerging markets (e.g.: Brazil) where forest assets with higher risk-return profiles existed. In fact, in South America and Asia the area of planted forests is growing due to:

- High biological growth rates;
- Low costs of wood production;
- Reasonable proximity of consumers to markets;
- Increasing land prices in emerging markets;
- Acceptable risk levels regarding land tenure, legality, law enforcement and other risks (e.g. fire) in contrast to most African countries.

As of today, between the 50% to 70% of timberland investments are currently located in USA (Asen *et al.*, 2012). More than 1.000 planted forests owners, investors and managers are participating in the institutional investment arena (Indufor, 2012). Planted forests usually represent no more than 2-3% of the total investment portfolio

of institutional investors (Staub-Bisang, 2011), but the importance of these investments should not be underestimated.

Based on the FAO (2012) study, today about USD 70-80 billion are invested in planted forests, up from 1 billion in 1980 (Table 2.2). If in the past institutional investors have played a dominating role in the expansion of tropical planted forests; currently an increasingly amount of retail investors are entering the forest finance market (Laaksonen-Craig, 2004).

Wood production is the major reason for investing in planted forests and nowadays can be coupled with the generation of some ecosystem services (e.g.: carbon credits). Multiple studies have shown the benefits of introducing planted forests investments into portfolios. The main beneficial features include (Fu, 2012; HTRG, 2003; Lausti, 2004; Lutz, 2009; Scholtens & Spierdijk, 2008; Toppinen & Zhang, 2010):

- Inflation hedging: planted forests are an inflation hedge, in other words the rate of returns in real terms from forests are positively correlated to inflation⁴;
- Low correlation with other asset classes: the rate of return on plantation investments is not correlated with returns on 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;
- Green credentials: investment risks can increasingly be reduced through certification, showing that forests are managed sustainably.

In the next decades, due to the scarcity of large tracts of investable areas, there will be a more important role for (Indufor, 2012; Lacy, 2006):

- private small and medium sized tree growers;
- lease arrangements between public authorities and companies;
- partnerships between strategic and financial investors⁵ as well as between companies and local land owners.

⁴ Because wood-based products are used in such a wide variety of sectors, investments in planted forests can potentially hedge against inflation.

⁵ Strategic investors are forest industry, energy and mining companies as well as soft commodity traders and local landowners. Financial investors includes institutional investors – foreign and local pension funds, and university and other endowment funds – represented also by TIMOs.

Table 2.1 - Historical overview of investments in planted forests.

	1980	1990	2000	2010	2020
ASSET UNDER MANAGEMENT	1 billion	12 billion	30 billion	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 & certified timber	Timber, certified timber & 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 Nation 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 Organisations (TIMOs) & 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; Indufor, 2012.

2.3 Theoretical background

The two sections of this chapter present a brief theoretical analysis of Corporate Social Responsibility (Chapter 2.3.1) and Sustainable and Responsible Investments (Chapter 2.3.2).

2.3.1 Corporate Social Responsibility

The concept of Corporate Social Responsibility (CSR) firstly appeared in scientific studies in the 1980s (Carroll, 1999). From the initial focus on social aspects, nowadays CSR is increasingly aligned with the concept of sustainability, encompassing a broader range of business aspects such environment, governance and economics (Vidal & Kozak, 2008).

Different approaches to the relationship between business and society have generated different way of looking at CSR (Han, 2010):

- Instrumental theories: CSR is considered only as a tool to achieve economic goals, hence long term profit maximization (Friedman, 1970);
- Political theories: business is powerful and can impact the society; the more the social power of a business, the more the social responsibilities (Davis, 1960);
- Integrative theories: business depends on society and a company should listen and integrate social demand (Preston & Post, 1975);
- Ethical theories: ethical standards are facilitating good business-society relationship; the company is committed not only to shareholders but also to stakeholders (Freeman, 1984).

In the forestry sector CSR instruments emerged since the early 1990s (Cashore, 2002), with major drivers been: i) growing difficulties of Governments in regulating and monitoring transnational corporations and the financial market; ii) the failure of policy instruments (command and control instruments) in promoting the sustainable management of natural resources; iii) the “Rolling back the frontiers of the state” with a transfer of environmental and social decisions from State level to corporate sphere (Heal, 2008); iv) an increased role of civil society in the decision making, shifting from a “government” to a “governance” level; v) the internationalization of companies, and the shifting of operations in less developed countries characterized by poor law enforcement and fragile social situations (Heal, 2008; Voegtlin *et al.*, 2011; Zhang *et al.*, 2014).

The major reasons for companies to engage with CSR are (Kurucz *et al.*, 2008; Jenkins & Smith, 1999; KPMG, 2011a; Vidal & Kozak, 2008):

- Increase transparency and minimize reputational risks;
- Reduce cost connected to lawsuit, boycott campaign, etc.;
- Gain market competitiveness (e.g.: avoid loss of market share, enter new markets and obtain price premium);
- Reputational and legitimacy improvements;
- Integration of stakeholders’ interest with the purpose to create win-win synergic value creation activities, based on the connection of stakeholders interests.

After almost thirty years from the first adoption of CSR, nowadays in forestry companies are focusing in the disclosure and reporting of sustainability performances, the adaptation of CSR strategies to the geographical scope in order to fit respond to the challenges of internationalization process, the alignment of CSR strategies with sustainability initiatives and the broadening scope of CSR strategies to social, environmental, economic and governance aspects (KPMG, 2011b; Toppinen & Zhang, 2010).

2.3.2 Sustainable and Responsible Investments

The concept of ethical finance that nowadays we refer to Sustainable and Responsible Investments (SRI) or, in short, 'responsible investments' or 'responsibility', was initially developed in the religious world (Kinder & Domini, 1998; Louche *et al.*, 2012). In the early 1930s in the USA religious groups started to exclude investments in alcohol and tobacco and favour pro poor investments (Table 2.3). After that, ethical screening of investments further developed beyond the simple exclusion of funds, focussing on quality assessment of individual company performances. In the '90s, also as a consequence of the Rio 1992 Earth summit, 'sustainability' entered into the screening of funds, leading investors to combine the concept of sustainable development with the socially responsible aspects of investments. The 2006 publication of the United Nations' Principles for Responsible Investments set the scene for the proliferation of SRI strategies we see today.

In the last decades SRI have undergone an enormous growth, fuelled by the 2007-2008 financial crisis, to gain a relevant role inside SRI strategies (Becchetti & Fucito, 1999; Benn *et al.*, 2014; EUROSIF, 2014; KPMG, 2011a; Richardson, 2013; Scholtens, 2014; Turcotte & M'Zali, 2004).

In fact, as of today 13.6 trillion USD of SRI are found globally (GSIA, 2012), an estimated 21.8% of the professional total assets under management (AUM). Europe is by far the current largest SRI market and with USA and Canada accounts for the 96% of the AUM (KPMG, 2013). Institutional investors lead the demand for SRI, representing 94% of the European market, versus only 6% of retail investors (EUROSIF, 2014). Both institutional and retail are increasingly entering the SRI sector, generating more than 10% annual growth rate (Allianz, 2010; EUROSIF, 2014; VIGEO, 2012). In Europe in 2013 the most common SRI financial products were equities (50%) followed by bonds⁶ (40%) (EUROSIF, 2014). The demand for SRI is mostly driven by the public opinion, then captured by Institutional Investors motivated by the reputational risks (Allianz, 2010; EUROSIF, 2014). At the same time also a growing number of High Net Worth Individuals, traditionally very cautious, is entering the SRI market (EUROSIF, 2012b).

From traditional exclusion screening strategies (e.g.: no pornography, no weapons, etc.), the introduction of ratings and metrics have diversified SRI strategies (Chapter 2.4), moving toward the approach of changing the business behaviour of companies (Dillenburg *et al.*, 2003).

The link between profitability and responsibility is no doubt one of the most investigated in SRI research. In this sense, three alternative hypotheses are possible (Bauer *et al.*, 2005):

1. SRI strategies are not affecting returns because they have no price;
2. SRI strategies generate lower returns due to screening and monitoring costs and the restricted investment universe;
3. SRI strategies increases returns.

The third hypothesis is consistent with the stakeholder theory (Freeman, 1984), the "good management theory" (Waddock & Graves, 1997) and the Branco and Rodrigues's "resource-based perspective" (Branco & Rodrigues, 2006). This theory is also known as 'do well by doing good', and supposes that a proactive approach to responsibility is enhancing the internal and external benefits (e.g.: employee loyalty, stakeholders commitment, etc.), thus also to financial benefits.

Despite of the large theoretical support to the assumption "the more responsible, the more profitable", and some investigations revealing a positive correlation between responsibility and financial performances (Bouslah, M'Zali, Turcotte, & Kooli, 2010;

⁶ The European Investment Bank (EIB) issued the first "green" bond in 2007.

Feldman, Soyka, & Ameer, 1996; Loucks, 2004; UNEP & Mercer, 2007), most of the studies agree that there is no statistical difference between the financial performances of conventional and responsible investments funds (Gladman, 2012; Hamilton *et al.*, 1993; Hoepner & McMillan, 2009; Leite & Cortez, 2014; Scholtens, 2014).

On the other side, several studies (Cortez *et al.*, 2012; Figge, 2001; Hoepner & McMillan, 2009; Leite & Cortez, 2014; Scholtens, 2014) are reporting that the lack of positive correlation between responsibility and profitability is impaired by methodological arguments such as:

- SRI concept is not straightforward. Different SRI strategies can be applied and they might have different impacts on returns;
- SRI are rather new to the market and the complexity of investor's utility functions might have been underestimated;
- A clear definition of SRI is missing, with the upper and lower limit being confused with philanthropic investments and conventional ones;
- The current internationalization process of investment funds could allow a SRI to achieve better diversification in the medium term;
- Financial performance of SRI funds can benefit in medium term of the inclusion of climate change risks.

With the growing number of instruments serving the demand for SRI, a clear classification system is needed in order to better investigate potential synergies between responsibility and profitability.

Table 2.2 - 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 (SRI)	SRI or Impact Investing
INVESTORS	Quakers movement	Religious groups 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 the investors type	Consolidation of Institutional and expansion of retail
REGIONS	USA	USA and UK	USA and Europe	USA and Europe	USA and Europe	USA and Europe	Global
SRI STRATEGIES	Exclusion	Exclusion	Exclusion	<ul style="list-style-type: none"> • Exclusion • Engagement and voting 	<ul style="list-style-type: none"> • Exclusion • Engagement and voting 	<ul style="list-style-type: none"> • 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 as alcohol and tobacco. In 1928 the Pioneer Fund is the first ethical fund	Avoiding sinful products as alcohol, tobacco and pornography	Exclusion from products to individual companies' behaviour. Society pressure: USA 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 Principle for Responsible Investments (PRI) are published	Measurement and monitoring of ESG impacts. Hot sections: climate change and energy. Third party accredited certification of research and SRI labels

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

2.4 Strategies for Sustainable and Responsible Investments

Different initiatives and SRI forum around the globe are contemporaneously promoting the integration of ESG into conventional finance resulting in a lack of clear definition of SRI (Scholtens, 2014). For the purpose of this study the EUROSIF definition of SRI is adopted. The choice is motivated by the fact that the European SRI market is largest internationally and that EUROSIF provides constant up-to-date market trends analysis of SRI strategies.

At least five organizations are currently internationally trying to categorize SRI strategies (Table 2.4): EUROSIF, the Global and Sustainable Investment Alliance (GSIA), the United Nations Principle for Responsible Investments initiative (PRI), the European Fund and Asset Management Association (EFAMA) and the Association of the Luxembourg Fund Industry (ALFI).

Table 2.3 – Comparison of SRI strategies classification systems.

EUROSIF	GSIA	PRI	EFAMA	ALFI
Exclusion	ESG Negative screening	ESG Negative/Exclusionary screening	Negative screening or Exclusion	Negative screening and Ethics
Norm-based screening	Norm-based screening	Norm-based screening	Norm-based approach	Negative screening and Ethics
Best-in-Class selection	ESG Positive screening and Best-in-Class	ESG Positive screening and Best-in-Class	Best-in-Class policy	Positive screening
Sustainability themed	Sustainability themed	ESG-themed investments	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)

The five classification systems appear to be consistent and identify seven SRI strategies. EUROSIF and the GSIA use the same categorization. The PRI classification system is missing Impact Investing while EFAMA separates SRI strategies into two groups. The first group 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. ALFI gives priority to the Environmental, Social or Governance component in the investment process. This method separates SRI in ESG cross-sectoral, ESG environment, ESG social, ESG governance and Ethics cross-sectoral.

For the purpose of this study the classification system of EUROSIF is considered, being the most consistent over the five classification systems and representing Europe, the largest global demand for SRI.

EUROSIF (2012a) defined seven strategies for SRI:

1. Exclusions, an approach that excludes specific investments or classes of investment from the investible universe such as companies, sectors or countries. Exclusion is the oldest and most frequent strategy and is based on negative screening;

2. ESG Integration, 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;
3. Norms-based screening, the screening of investments according to their compliance with international standards and norms;
4. Engagement and voting, 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 behaviour or increase disclosure;
5. Best-in-Class, an approach where leading or best-performing investments within a universe, category or class are selected or weighted based on ESG criteria;
6. Sustainability Themed, investment in themes or assets linked to the development of sustainability. Thematic funds focus on specific or multiple issues related to ESG;
7. Impact Investing, are investments made into companies, organisations and funds with the intention to generate social and environmental impacts alongside a financial return. Impact investing can be made in both emerging and developed markets, and target a range of returns from below market-to-market rate, depending upon the circumstances.

The allocation of investments inside each strategy group is not straightforward, being the strategies quite often combined. On the other side is clear that all the strategies are having fast growing rate (Table 2.5). A detail analysis of the seven strategies is provided in table 2.6.

Table 2.4 – Value and growth of SRI strategies in Europe, 2011-2013.

SRI Strategies	Value (€ Million)		CAGR*
	2011	2013	
Exclusions	3 584 498	6 853 954	+38.3%
ESG Integration	3 164 066	5 232 120	+28.6%
Norm-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%

Source: EUROSIF (2014)

*: Compound Annual Growth Rate

Table 2.5 – Strategies of Sustainable and Responsible Investments.

STRATEGY	LOGIC	FEATURES
Exclusions	Certain products, sector, companies or countries are excluded from portfolio either on a religious faith-based or a reputational-based approach	The oldest and largest strategy in term of AUM strategy (about 40% of European AUM for a value of 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 into the financial analysis	Information gathering is usually the first step of an asset manager toward SRI. ESG Integration has three levels: i) non-systematic with available research but no formalized process; ii)

		systematic, based on continuous inclusion of research into financial analysis; iii) mandatory, with ESG findings compulsorily included. It is the second largest strategy in Europe.
Norm-based Screening	The selection of investments is based on the respect of international norms and standards. Usually is a negative selection (exclusion)	Originated in North Europe. International norms and standards as such: United Nations (UN) Global Compact, Organisation for Economic Co-operation and Development (OECD) Guidelines, International Labour Organization (ILO), etc. Rapidly expanding strategy at 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 entered into companies being part of the portfolio to push for company's ESG performances improvement	UK driven strategy expanding to other countries with the highest compound annual growth rate (36%) in 2011-2013. The strategy is fuelled in Europe by the 2014 European Commission 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 as renewable energy, climate change, forestry, health, etc.	Mostly indirect investments, that means the selling or buying of already existent investments. Mostly connected to environmental class. Sometimes the sustainability is more related to sector itself rather than to the ESG performances. This is 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 distinguish from philanthropy: investors are becoming asset owners and expecting financial return. Is the smallest strategy in term of AUM but has the fastest CAGR (+52% between 2011 and 2013)

Sources: EFAMA (2014); EUROSIF (2014); Scholtens (2014)

2.5 SRI in the forestry sector

While the number of SRI tools is increasing (EUROSIF, 2010), few studies have investigated the role played by these instruments inside the forest sector. Based on EFAMA (2014) and EUROSIF (2014), forest investments have a relevant role on Sustainability Themes strategies. In fact, in 2012 a number of 31 forestry funds existed, accounting for a total of EUR 3.1 billion of AUM (KPMG, 2013). Forest investments might also take into consideration Impact Investing, ESG Integration and

Best-in-Class (Table 2.7). A rather marginal role for forestry is expected in the remaining strategies.

Table 2.6 – Role of planted forests investments in SRI strategies.

STRATEGY	HOW DOES IT WORK?	APPLICABILITY TO PLANTED FORESTS	EXAMPLE
Sustainability themed	Transitioning to more sustainable consumption and production	HIGH: forestry dedicated funds. Also climate funds	From non certified 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: favoured by the advance 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 into portfolio	MEDIUM, for large pulp and paper companies listed in stock change	Using rating systems to check best performing paper and pulp mill companies
Exclusion	Removing companies or sectors from portfolio	LOW, usually applied at sector level, mostly on controversial weapons, tobacco, gambling, nuclear power, etc. More likely to be applied for natural forests management and conservation	Removing the forestry sector from portfolio due to issue of primary forests conversion. Can be use to planted forests using genetically modified organisms or exotic species
Norms-based screening	Using international norms and standards for companies selection	LOW, international norms mostly targeting natural forests. Potential applicability with FLEGT. Voluntary standards not yet included	Based on UN Global Compact a 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

Sources: EFAMA (2014); EUROSIF (2014)

Current initiatives as the International Social and Environmental Accreditation and Labeling (ISEAL Alliance) for the definition of relevant indicators, the Committee on Sustainability Assessment (COSA) for impacts measurement and the International Trade Centre's Trade for Sustainable Development (T4SD) database with the Standards Map project and the FAST- GIZ Indicators for Investments in Sustainable Forestry could increase the knowledge on impact measurement methodologies and indicators (ITC, 2011b).

On the other side, several studies have investigated the use of CSR instruments in the forestry sector (Table 2.8), with specific attention to voluntary forest management certification under either FSC or the PEFC standards (Auld *et al.*, 2008; Burger *et al.*, 2005; Gullison, 2003; ITC, 2011a, 2011b). In fact, forest certification is perceived as a benchmark and few studies are based on impacts measurement with empirical ex-post analysis (Visseren-Hamakers & Pattberg, 2013).

Table 2.7 – Overview of studies on impacts of forest certification.

AUTHOR	TARGET	AREA	CSR TOOL	IMPACT FOCUS	METHOD	OUTCOMES
Morris & Dunne, 2004	Processing companies	South Africa	FSC	Value chain & market	Interview with control firm approach	POSITIVE: access to market. NEGATIVE: small enterprises are marginalize
Nebel <i>et al.</i> , 2005	Natural forests and processing companies	Bolivia	FSC	Overall	Statistical analysis	POSITIVE: access to market and price premium. Enforcement of statutory control
Overdevest & Rickenbach, 2006	Natural forests and plantations	USA	FSC	Overall	Survey-based	NULL: no price premium
Kollert & Lagan, 2007	Natural forests	Malaysia	FSC	Financial performances	Statistical	POSITIVE: price premium
Foster <i>et al.</i> , 2008	Natural forests	USA	FSC	Environmental (carbon)	Sample plots with control firms approach	POSITIVE: more carbon stock
Maletz & Tysiachniouk, 2009	Natural forests	Russia	FSC	Audit techniques	Interview	POSITIVE: socially inclusive NULL: formalistic style
Araujo <i>et al.</i> , 2009	Natural forest and plantations	Brazil	FSC and PEFC	Overall	Survey-based	NULL: no price premium POSITIVE: better market access
Cabbage <i>et al.</i> , 2010	Plantations	Argentina and Chile	FSC and PEFC	Overall	Interview and statistical analysis	POSITIVE: improved forest management practices, legal and social aspects
Bouslah <i>et al.</i> , 2010	Natural forests and processing companies	USA and Canada	FSC and PEFC	Financial performances	Statistical analysis with control firm approach	POSITIVE financial benefits for FSC on the long-run
Cerutti <i>et al.</i> , 2011	Natural forests	Cameroon	FSC	Forest management practices	Statistical analysis with control firm approach	POSITIVE: reduction of harvesting rate in a situation of overharvesting
Johansson & Lidestav, 2011	Natural forests	Sweden	FSC and PEFC	Environmental	Survey-based and statistical analysis	NULL: no improvement detected. Negative for PEFC: increased harvesting rate
Lidestav & Berg Lejon, 2011	Natural forests	Sweden	FSC and PEFC	Overall	Statistical analysis	POSITIVE: increased harvesting rate in a situation of under harvesting
Dare <i>et al.</i> , 2011	Plantations	Australia	FSC	Social	Interview	NULL POSITIVE: improvement of engagement practices
Moore <i>et al.</i> , 2012	Natural forests and plantations	USA and Canada	FSC and PEFC	Overall	Survey-based	POSITIVE: FSC requires more environmental changes, PEFC requires more economic changes

Source: own elaboration

3 MATERIALS AND METHODS

Having no previous studies as reference to organize the survey, the methodology has been derived from different research documents adapted to our specific field of interest.

As presented in Chapter 2, the review of investment and plantation data has been mainly focused on the review of literature as peer-reviewed paper, technical reports and grey literature as well.

3.1 Stakeholders database

A stakeholder's database has been created from literature review, interviews with specialists and International Organizations (IOs) as well as from the field work based on case studies.

Following an investment process approach, from investors to processing companies, our survey has classified the organizations operating with planted forests investments. A distinction has been made into three groups (Tab 3.1):

1. **Market players:** organizations operating with planted forests investments, either conventionally or with dedicated SRI strategies. These organizations can attain more (e.g.: TIMOs and planted forests companies) or less specifically to the forest sector;
2. **SRI infrastructures:** organizations specifically dedicated to advocacy of SRI and provision of SRI services (e.g.: standard setters and forum);
3. **Governments and civil society:** mostly networks, NGOs, associations and intergovernmental organizations having a stake on planted forests investments but not directly participating to the investment process or to the provision of SRI services (e.g.: NGOs, UN bodies, etc.).

The definition of stakeholders is based either on:

- recurrent consistent definitions based on peer reviewed studies;
- financial terminology accessible by on-line financial dictionaries such as:
 - Financial Dictionary, www.financial-dictionary.thefreedictionary.com;
 - Wall Street Oasis, www.wallstreeoasis.com;
 - Investopedia, www.investopedia.com;
 - Borsa Italiana, www.borsaitaliana.it.

A value-chain map has been used to lay out stakeholders along the forest SRI sector (ITC, 2011a). Finally, each tracked investment projects in planted forests has been analysed in term of location (country) and use of SRI tools.

Table 3.1 – Group and class of stakeholders operating in the forest SRI sector.

GROUP	CLASS	ACRONYM	ROLE	EXAMPLES
Market players	Investors	INV	Investors can be Institutional or Retail. Institutional are such as a pension fund, insurance company, bank, which generally has substantial assets and experience in investments. Retail Investors deals in securities only occasionally, especially dealing in small quantities. Mutual funds are pools of money that are managed by an investment company. Include also High Net Worth Individuals.	Brookfield Brazil Timber Fund (BBTF), European Investment Bank
	Investment	INC	A firm that that invests the funds	New Forests,

	Companies		of investors in securities appropriate for their stated investment objectives in return for a management fee. Include also Investment manager, Asset Management Companies, TIMOs and REITs	Global Forest Partners LP
	Plantation Companies	PLC	Companies that manage planted forests operations including land clearing, nurserying, plantation and harvesting	Green Resources, Dak To Planko
	Processing Industries	PI	Companies involved also but not exclusively in the processing of timber coming from planted forests	Fibria, Pomera Garruchos
SRI infrastructures	Certification bodies	CB	Independent and accredited organizations controlling the respect of standards	NEPCon, TUV SUD
	Accreditation Bodies	AB	Organization controlling certification bodies and rating agencies	ASI, GISR
	SRI standard setters	STD	Organizations involved in the development of standards for SRI in the planted forests sector. Include all investment process: from sustainable accounting to forest management standards	FSC, SASB, IRIS
	SRI Rating	RTG	Organizations rating funds, companies and investments based on a define set of SRI indicators	EIRIS, GIIRS
	SRI Consultants and advisors	C&A	Companies or individuals consulting investors, investment companies and plantation managers on forestry and SRI	INDUFOR, OpenForest
	SRI Associations & Forum	A&F	Non-profit associations and forum supporting the uptake of SRI at investors level through advocacy and networking activities	FAST, Ethical Investment Association
	SRI Directories	DRT	On-line instruments providing investors with information databases on companies and sectors performances	The Global Mechanism
	Governments and civil society	Non-Governmental Organizations	NGO	Non-governmental organizations supporting or involved in planted forests SRI
International Organizations		IOs	Also known as international governmental organizations are made of sovereign states and are operating in the field of investments and forestry sector	UN, World Bank, CIFOR
Plantation Associations		PAS	Associations of planted forests owners providing technical and advocacy services	AFOA, UTGA
Research Organizations		RSC	Universities, independent research groups and think-tanks operating in the forestry investment sector	The Global Canopy Programme

Source: own elaboration.

3.2 SRI tools database

The SRI tool database includes instruments (code, standards, rating, etc.) that are applied to the planted forests SRI sector.

To be included in the database a SRI instrument has to meet all the following requirements:

- being applicable to planted forests (those instruments only applicable to natural forests have been excluded);
- being already applied in at least one on-going planted forest investment project.

An SRI instrument has not been included in the SRI tools database when it either: i) exists but has never been applied; ii) exists but is not applicable to a specific investment (e.g.: the FAO Responsible management of planted forests: Voluntary guidelines. Working Paper on forests and planted trees No. 37/S); iii) does not exist anymore.

Tools have been identified through the analysis of literature, SRI infrastructures and investment directories, SRI stakeholders' web sites, environmental and social reports and finally with SRI interviews by phone, at conferences or during the field work.

The SRI tool database is constantly updated whenever new instruments are found or old instruments close down.

There is no widely accepted classification system for SRI tools. Lammerts Van Bueren & Blom (1997) and then Holvoet & Muys (2004) introduced the first elements of classification, today better refined by the recent research of Masiero & Secco (2013). To facilitate the selection by organisations involved in planted forests investments, SRI tools have been described according to the following consistent variables (Table 3.2):

- **Type:** what kind of instrument is it?
- **Specificity:** is it a forest specific or a broader scope instrument?
- **Governance:** which type of organization is developing and managing the SRI tool?
- **Investment process stage:** who is using the instrument?
- **Level of control:** how is the application of the instrument controlled?
- **First publication:** when the SRI tool has been made public?
- **Geographical origin:** where was the tool firstly produced?
- **Geographical application:** where is the tool implemented/implementable?
- **Coordination:** to what extent there is coordination with other tools?
- **Market share:** how far is the tool applied in term of impacted area and/or number of companies?

Table 3.2 – Descriptive variables for the classification of SRI tools.

VARIABLES	ELEMENTS CONSIDERED IN VARIABLES DEFINITION
Type	Management standard
	Bank investment policy
	Investment guideline
	Investment standard
	Reporting standard
	Investment rating
	Legality benchmark
	Investment index
	Codes of conduct
Specificity	Broad
	Forest (including planted forests)
	Planted forests

Governance	Academic
	Business
	Government
	NGOs
Investment process stage	Investor
	Investment companies
	Plantation companies
	Processing and selling companies
Level of control	Signature and/or participation
	Conformity declaration
	Conformity assessment
	Certification
First publication	Date of first publication of the SRI tool
Geographical origin	Africa, Asia, Europe, Oceania, North America, South America
Geographical application	Africa, Asia, Europe, Oceania, North America, South America, International
Coordination	Number of coordinated SRI tools
Market share	Number of companies, AUM or hectares involved

Source: own elaboration.

3.2.1 Type of instruments

Amongst the plethora of SRI tools for investments in planted forests, there are internal policies, codes of conduct, standards (either for management, investment or accounting), reporting tools, investment guidelines, rating systems and indexes (Table 3.3.). 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 five years, substituting voluntary legality instruments as legality verification.

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 instruments but are however essential evaluation tools addressing the country friendliness towards planted forests investments. The definitions of instruments, as mention in Paragraph 3.1, is based either on:

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

Table 3.3 - Corporate Social Responsibility tools applied to investments in planted forests.

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)
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 organisations 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 organisations based on their ESG performances.	SCOPEinsight
Legality benchmark	Forest related legality requirements.	EU Timber Regulation
Investment index	Measures the performance of companies that meet globally recognised 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

3.2.2 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 the definition by Masiero & Secco (2013) 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.

3.2.3 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 which 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 organisations which 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 organisations. 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, include IOs and UN bodies;
- NGOs, include all instruments that have a relevant or dominant participation of NGOs.

3.2.4 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 are focussing 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 and other carbon standards). In some cases, SRI instruments, such as the Global Reporting Initiative (GRI), can be used along the whole investment process. Four investment process levels are suggested in order to facilitate the selection and use by stakeholders:

- **SRI tools for investors:** these tools are used by banks, funds managers, High Net Worth Individuals, etc. like the UN PRI, these tools are generally characterized by 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 hold 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 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). These tools have high planted forests specificity;
- **SRI tools for processing industries:** processing companies such as sawmill, paper mills, etc. uses these instruments. This group includes instruments for organisations 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).

3.2.5 Level of control

Being voluntary tools 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 which is performed in order to ensure respect of the instruments. Table 3.4 summarises the four levels of applicable control (ISEAL Alliance, 2012; ISO, 2004):

- 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 for each level of control one or more control strategies have been identified.

Table 3.4 – Level of control for Corporate Social Responsibility instruments 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	Ecobanking Project	1	– Issue – Signature

	organisation, of initiatives such as campaigns, networks and other initiatives requiring signature. No reference to any specific standard. General commitment with no control system is in place.			
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	<ul style="list-style-type: none"> – Risk Assessment – Reporting – Conformity declaration
Conformity assessment	Also known as second-claim certification, it involves the assessment of the organisation conformity to standards or guidelines by an external BUT non-independent control agency. It also includes monitoring activities via governmental bodies usually focussing on legality control.	<ul style="list-style-type: none"> – Certified B Corporations – EU Timber Regulation 	3	<ul style="list-style-type: none"> – Conformity assessment – Exclusion
Certification	Also known as third-claim certification, it involves the assessment of the organisations conformity to standards or guidelines by an external, independent and accredited control agency.	<ul style="list-style-type: none"> – ISO 14001 – FSC – The Gold Standard 	4	<ul style="list-style-type: none"> – Certification

Source: own elaboration

3.2.6 First publication, coordination, geographical origins and application, market relevance

Additional descriptive variables considered are:

- **First publication:** 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 which the single tool is related to;
- **Geographical origins:** it represents the geographic region in which the SRI tool was first developed and applied. Options: Africa, Asia, Europe, Oceania, North America and South America;
- **Geographic application:** it refers to the actual or potential geographic area of application of the instrument. Options: Africa, Asia, Europe, Oceania, North America, South America and International;
- **Market relevance:** it specifies either the number of companies, AUM or hectares of plantations involved. Market relevance is obtained either through literature or through market reports of each single SRI tool.

3.3 SRI tools desk quality assessment

After the identification and characterization of SRI tools, a desk quality assessment has been carried on based on ESG criteria. The quality assessment consists in the following steps:

1. **Draft of a ESG Reference Document** starting from existent planted forests standards quality assessment frameworks (Holvoet & Muys, 2004; Lammerts Van Bueren & Blom, 1997; Masiero *et al.*, n.d.; Masiero & Secco, 2013; Merger *et al.*, 2011; Merger, 2008; WWF, 2008). Due to the heterogeneity of instruments, instead of referring to principles, criteria and indicators (PCIs), the **ESG Reference Document** refers to a hierarchical framework made of sections, subsections and issues (TSIs). An example is reported in Table 3.5. A final set of 7 sections, 22 subsections and 155 issues has been identified (Table 3.6). The starting set of TSIs is the one formulated by (Holvoet & Muys, 2004) and further refined by Masiero (2010). New section, subsections and issues found during the analysis of SRI tools have been included into the **ESG Reference Document**. For example the sections “Climate change and ecosystem services” and the related subsections and issues emerged during the analysis of forest carbon standards. Similar issues have been grouped together: an example is the conservation and avoided conversion of primary forests and wetlands. This concept is frequently found in SRI tools with different wording (e.g.: protection of wetlands, tropical forests, humid forests, native forests, primary forests, intact forest landscape, etc.). For each issue a list of potential verifiers has also been developed;
2. **Gap analysis** of each single SRI tool in comparison to the **ESG Reference Document** in term 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 & Innes, 2005; Masiero & 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 are considered (Table 3.4);
4. **Draft of SRI classification system** based on the number of issues addressed by each single SRI tool with the additional possibility of accounting for the control factors.

Furthermore the issues, subsections and sections with the highest frequency on SRI tools have been identified. issues occurring in several different SRI tools are expected to be more important than those occurring only in few SRI tools, at least on a theoretical base.

Table 3.5 – Example of hierarchical framework consisting in section, subsections, issues and verifiers.

SECTION	SUBSECTIONS	ISSUES	VERIFIERS
Legal and Institutional Framework	Legislation	Respect of local and national applicable laws and regulations	<ul style="list-style-type: none"> • Penalties & fees since project starting date • Complaints by stakeholders and NGOs
		Compatibility with international or national agreements signed by the hosting country	...
		Conformity to labour legislation (e.g.: ILO standards)	...
	Illegal logging
	Property

Source: own elaboration

Table 3.6 – List of sections and subsections developed for the ESG Reference Document.

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
	Green House Gases	4
	Ecosystem services	3
Supply chain and traceability	Traceability	2
	Supply chain	9
	International sustainability standards	19

Source: own elaboration

3.4 ESG Risk Assessment: multiple case studies

After the development of the desk quality assessment an ESG Risk Assessment has been developed to be tested on-the-ground with multiple case studies analysis.

A qualitative case studies analysis with holistic and literal replicated case studies has been carried on. Holistic in the sense that they will not be divided in sub samples; literal replicated because it allows the research to test the stakeholders' theory, through prediction of similar results (Yin, 2009). In other words, the case studies are expected to be exemplary outcomes in research questions explanation.

The applied case study analysis framework is derived and modified from Yin (2009) and is divided into 3 main phases:

1. selection of case studies;
2. data collection and analysis of single case study;
3. final analysis and cross-case reporting.

3.4.1 Selection of case studies

The study has selected case studies in Africa and South East Asia. Pre-feasibility case studies have been carried on in Argentina in 2012⁷ followed by a full data collection in Uganda, Cambodia and Vietnam in 2014. A total number of 12 case studies have been analysed (Table 3.7).

The selected projects satisfied all the following criteria applied for the case studies selection:

- Capacity of being exemplary outcomes in research question evaluation: all the investment projects accepted the disclosure of financial performance indicators and allowed the analysis of the whole investment value chain, from investors till processing companies;
- Possibility of analysis of on-going management activities;
- Importance of investments in planted forests at national level;
- Possibility of study outcomes dissemination and application at national level;
- Possibility of reducing environmental and market bias, thus enhancing internal validity, due to similar ecological conditions inside the single countries;
- Possibility of finding revelatory case studies;
- Perception of wider range of solutions: different property arrangements can provide a wider and more comprehensive view of the way how SRI strategies affect project financial performances;
- Type of SRI tools used: 11 different SRI tools are implemented in the analysed case studies. While 7 control projects have no SRI strategy the remaining 5 projects have different complexity of SRI strategies. In Uganda, Cambodia and Vietnam at least one control projects with no-SRI is included as well as one project with SRI strategies in place.

3.4.2 Data collection and analysis of single case study

The framework of Rojas (2010) "The Assessment of Environmental and Social Risk in loan and Investment Fund Applications (ESRA)" is used as a reference for the development of the ESG Risk Assessment. The ESRA methodology is developed in four phases (Rojas, 2010):

1. Identification of ESG risks;
2. Classification of projects or activities for financing;
3. Assessment of ESG risks;
4. Risk management.

The ESG Risk Assessment has two level of analysis: country level and project level. Countries can differ in term of suitability for investments in planted forests. Aspects such as easiness of doing business, transparency, governance and political stability can heavily influence the ESG Risk Assessment. For this purpose, country indicators used by SRI stakeholders have been identified and categorized based on:

- **Focus**, which are the country investment enabling conditions considered?
- **Governance**, which type of organization is developing and managing the country indicator?
- **First publication**, when was the country indicator firstly published?
- **Geographical origin**, where was the tool firstly produced?
- **Countries covered**, how many countries can be scored?

⁷ The three prefeasibility case studies in Argentina, two with SRI strategies and one control project with no-SRI, have been carried on with the only purpose of testing the data collection protocol, hence the results will not be included in the study.

For each case study the ESG risk assessment consist in assigning scores to the following four factors (Table 3.8):

1. Risk – a measure to define whether a issue is generating risks in a project;
2. Mitigation – the amount of risk that has been mitigated and, as a consequence, the value of the residual risk;
3. SRI Impacts – the amount to which the SRI strategy is responsible for the risk mitigation, hence, a measure of the effectiveness of SRI tools;
4. Measurability of Key Issues – reveals the easiness of measuring a certain risk and the related mitigation activities.

Table 3.7 - Major features of case studies.

Registry ID*	Legal structure**	Productive area [ha]	Project start	Project phase	Specie	Income Source	MAI (m ³ /ha/y) & Rubber (t/ha/y)	Rotation period (y)	IRR%	Number of SRI tools
KH_14_1	LLC	5000-15000	2009	early	<i>Tectona g.</i>	Timber	11	25	15,0	4
KH_14_2	LLC	>15000	1980	late	<i>Hevea b.</i>	Latex, timber, firewood, rubber seeds	6.5 & 1.7	30	15,2	2
KH_14_3	Non-Profit	<5000	2007	early	<i>Hevea b.</i>	Rubber, sawnwood	1.5, only rubber	30	16,5	0
KH_14_4	Sole p.	<5000	2004	mid	<i>Hevea b.</i>	Rubber	2, only rubber	25	19,6	0
UG_14_01	LLC	5000-15000	2002	mid	<i>Pinus c.</i>	Timber, fuelwood, carbon credits	25	18	16,7	6
UG_14_2	LLC	<5000	2006	mid	<i>Pinus c.</i>	Timber, fuelwood	20	18	12,0	0
UG_14_3	Sole p.	<5000	2011	early	<i>Eucalyptus g.</i>	Timber, poles, firewood	15	10	NA	0
UG_14_4	Sole p.	<5000	2007	early	<i>Pinus c.</i>	Timber	10	20	NA	0
VN_14_1	Non-Profit	<5000	2005	mid	<i>Acacia a.</i>	Timber, chipwood	10	10	27,2	2
VN_14_2	Gov	5000-15000	1977	late	<i>Acacia m.</i>	Timber, NTFPs	15	10	17,8	3
VN_14_3	Gov	<5000	1998	late	<i>Acacia m.</i>	Woodchip, honey	16	7	17,6	3
VN_14_4	Gov	<5000	2001	late	<i>Acacia m.</i>	Woodchip, honey	16	7	15,8	0

*Due to confidentiality agreements no information that can reveal the identity of companies involved in the study are provided. Case studies are identified through Registry ID. KH = Cambodia, UG = Uganda, VN = Vietnam. ** LLC = Limited Liability Company, Sole p. = sole proprietorship, Gov = public company privatized or in the process of privatization.

Table 3.8 – ESG risk assessment for case studies.

SCORE	LEVEL	WEIGHT	DESCRIPTION	METHODOLOGICAL NOTES
Risk				The risk is more severe with high probability and high costs impact. Does the issue exist? How likely to happen? How big the financial impact/costs to remedy? Different stakeholders are likely to report different level or relevance. The final level should balance the expected financial risks by the company with the perceived relevance by impacted stakeholders
<i>Is the Key Issue generating risk in your project?</i>				
	Extreme	1	Already occurred in the project, high cost for the project	
	High	0.66	Already occurred in the project, region or country, medium cost for the project	
	Medium	0.33	Already occurred in the region or country, low cost for the company	
	Low	0	Unlikely to occur in the region or country, non applicable	
Mitigation				Multiple verifiers are established to check the existence and the effectiveness of the management and control measures. Objective and measurable verifiers are preferred.
<i>Has the organization undertaken risk mitigation measures to solve the Key Issue?</i>				
	In place	1	Mitigation measures in place and effective	
	Implementation	0.75	Mitigation measures under implementation	
	Development	0.5	Mitigation measures under development and research	
	Partially covered	0.25	Mitigation measures only partially identified	
	Non existent	0	Mitigation measures do not exist	
SRI impact				The risk mitigation capacity of the SRI strategy or the single SRI tool has to be assessed. Is the SRI strategy: a) generating new instruments/measures, b) improving existent instruments/measures, c) increasing updating frequency of instruments/measures, d) improving communication and disclosure, e) improving stakeholder trusts and relationship. For the SRI impact evaluation a time series approach is taken into consideration looking at the mitigation measures before and after the implementation of the SRI strategy
<i>Is the SRI strategy making any difference?</i>				
	High	1	SRI strategy is forcing the development of new mitigation measures	
	Medium	0.5	SRI strategy is improving existing mitigation measures	
	Low	0	SRI strategy has minimal effect on the improvement of existing tools (e.g.: better reporting and evaluation framework)	
Measurability of Key Issues				The easiest the measurability the lower the costs and the time needed to collect reliable and trustable information.
<i>How easy can the Key Issues and mitigation measures be measured?</i>				
	Very easy	1	Required only public available information (e.g.: PDD, Audit Report, Forest Management Plan summary, web site, etc.)	
	Easy	0.75	Required simple research techniques: mail, phone call and document translation	
	Difficult	0.5	Required more elaborated research techniques with desk and field audit and stakeholders/documental review	
	Very difficult	0.25	Require further research, data and wider stakeholder analysis	

Risks are commonly defined as the combination of the likelihood of an occurrence and the consequence of that occurrence. An example of commonly adopted risk assessment is reported in table 3.9. This approach requires the establishment of thresholds for both the likelihood, based on probability studies (e.g.: once per year, once per month, etc.), and the consequences, based on estimations of the financial negative impact of the risk (e.g. % of planted forest affected, cost of remediation, cost of mitigation, etc.).

Table 3.9 – An example of risk priority levels.

Likelihood	Consequences				
	Insignificant	Minor	Moderate	Major	Catastrophic
Almost certain	Medium	Medium	High	Extreme	Extreme
Likely	Low	Medium	High	High	Extreme
Possible	Low	Medium	Medium	High	High
Less likely	Low	Low	Medium	Medium	Medium
Rare	Low	Low	Low	Low	Medium

Source: adapted from Broadleaf Capital International & Marsden Jacob Associates (2006)

For the purpose of this study a simplified risk assessment has been adopted. The likelihood is estimated based on the occurrence of the risk at project level and the spatial proximity of the risk (Table 3.10). Consequences are rated on a scale of 5 levels that range from insignificant to catastrophic, based on a prioritization process whereas stakeholders (see Table 3.12) are asked to prioritize the risks based on the expected impacts. The risk for each issue is the average of the risk reported by different stakeholders. Table 3.11 reports the risk matrix adopted for the ESG risk assessment.

Table 3.10 - Likelihood scale table: likelihood that a consequence occurs.

Rating	Recurrent risks
Almost certain	Already occurred several times and/or is likely to occur again several times during project duration
Likely	Already occurred once in the project and/or is likely to occur again during project duration
Possible	Already occurred in the region or country but not in the project
Rare	Unlikely to occur in the region or country and/or is not applicable

Source: modified from Broadleaf Capital International & Marsden Jacob Associates (2006)

Table 3.11 – Environmental, Social and Governance risk matrix.

Rating	LIKELIHOOD	CONSEQUENCE				
		Insignificant	Minor	Moderate	Major	Catastrophic
Almost certain	Already occurred several times and/or is likely to occur again several times during project duration	0.33	0.66	1	1	1
Likely	Already occurred once in the project and/or is likely to occur again during project duration	0.33	0.66	1	1	1
Possible	Already occurred in the region or country but not in the project	0.33	0.33	0.66	0.66	0.66
Rare	Unlikely to happen in the region or country and/or is not applicable	0	0	0	0.33	0.33

Such methodological simplification has been necessary to maintain the consistency of the risk assessment over case studies in consideration of:

- the trade off between the field testing of the whole set of 155 issues (risks) and the time constrains of investment managers and plantation managers in responding the questionnaire;
- the difficult or sometime impossible definition of thresholds and financial impacts of certain risks (e.g.: publication of rights toward the forest area);
- the lack of capacities of stakeholders such as smallholders, local communities, forest workers or subcontractors to provide financial value associates with consequences.

The data collection team has been composed by the author Mr Lucio Brotto (Italy) and independent interpreters hired by the author. Oliver David Miles Cupit (UK) and Richard Morton (Ghana), both MSc students from the SUTROFOR (Sustainable Tropical Forestry) programme, provided their valuable support for the data collection in Uganda. The collection of data related to contemporary events was characterized by absence of project actors' behavioural manipulation control, preserving the data reliability.

Case evidences gathering was based on:

- semi structured interviews of project actors, considering the four stakeholder categories (Table 3.12), for a total number of 172 interviewed stakeholders;
- document analysis;
- direct observations based on:
 - participation in stakeholders meeting;
 - observation of stakeholders activities;
 - participation at stakeholder Skype, webinar and phone talks;
 - field visits.

Table 3.12 – Stakeholders of investments in planted forests.

Investment structure and physical location			
		INTERNAL	EXTERNAL
Involvement in project activity	DIRECT	Investors, investment companies, plantation companies, processing companies, workers	Local communities
	INDIRECT	Sub-contractors	NGOs, Government, IOs

Source: adapted from Lesourd & Schilizzi (2001)

The Progressive Contextualization Information Gathering method (Vayda, 1983), firstly applied for studying deforestation in the Kalimantan region of Indonesia in early 90’s, can be represented as an understanding spiral, where number of stakeholders involved and information gathered expand with the progressive increase of the forest investment project key issues understanding and knowledge acquiring. In the case studies, the Vayda’s method has been applied following these principal sequences:

- Sign of confidentiality agreements with project leaders;
- Background country data information gathering through meeting of relevant NGOs and Governmental bodies in each country;
- Initial data collection at the problem focal point: the investment company or plantation company offices;
- Expansion of the research area to NGOs, local communities, indigenous communities and all the actors and stakeholders that were appearing to be relevant in addressing issues and case studies evidence gathering.

Thus, from the analysis of specific people, location and activities (in this case investment companies and plantation companies working in their offices), the Vayda’s method leads researchers to an increasing broader stakeholders’ consultation, based on a logic chain of evidence patterns.

3.4.3 Final analysis and cross case reporting

The multiple case studies analysis is focusing on the ESG Risk Assessment and has the following purposes:

- test the validity of the desk quality assessment in term of importance of ESG issues, with the purpose to address market players, SRI infrastructures, Governments and civil society on adjustments to improve their ESG evaluations. The importance of the issues identified during the desk analysis (RRD), is compared to the importance of the issue as resulting from the field work (RRF);
- provide a measure of the ESG risks for investments in planted forests following an investment process approach, from investors to processing companies. In this case the residual risk (RR) is presented;
- produce a fast ESG risk Assessment based on the most 25 important issues (R25). These issues shall be representative of the total risk of the project;
- assess the ESG risk mitigation capacity (SRI%) of SRI tools on-the-ground;
- inform about the measurability of key issues in order to formulate reliable cost effective ESG tracking instruments;

- test the hypothesis that SRI strategies increases return through a reduction of the overall risk of the project.

Table 3.13 reports the variable used for the comparison of case studies.

The major ESG risks will be presented as well as a review of the impacts of SRI tools together with the best risk mitigation strategies by country.

Table 3.13 – Variable used for the comparison of case studies.

VARIABLE	ABBREVIATION	EXPLANATION
RISK RANK DESK	RRD	The ranking of issues from 1 to 155 with 1 representing the most frequent issue based on desk analysis of SRI tools
RISK FIELD	RF	The risk generated by a issues obtained as the average of the risk of the issue in each case study
RISK RANK FIELD	RRF	The ranking of issues from 1 to 155 with 1 representing the issue with the highest RF, hence the most frequent issue found during the ESG Risk Assessment
RISK 25	R25	The sum of the first 25 most important risks based on the RRF
MITIGATED RISK %	MR%	The % of the risk that is mitigated for each single issue. It is obtain by multiplying the RF of the issue by the percentage of mitigation for the corresponding issue
MITIGATED RISK 25	MR25	The sum of the MR% of the first 25 most important issues based on the RRF
RESIDUAL RISK%	RR	It is equal to the RF minus the MR% for each issue
RESIDUAL RISK 25	RR25	The sum of the RR for the most important 25 issues
SRI IMPACT %	SRI%	The amount of MR% that result from the implementation of the SRI strategy
MEASURABILITY	MS	Expresses the easiness of measuring a certain issue and is the result of the average score of measurability of the issue across case studies
INTERNAL RATE OF RETURN	IRR%	Indicate the Internal Rate of Return in percentage over the entire investment period for each case study

4 RESULTS AND DISCUSSION

Results presentation is organized in four sections:

- the analysis of the stakeholders for investments in planted forests;
- the description of SRI tools;
- the desk quality analysis of SRI tools;
- the ESG Risk Assessment based on multiple case studies.

4.1 SRI stakeholders: a value chain analysis

A total number of 121 planted forests investments and 339 organizations (including investors, investment companies, and plantation companies) have been analysed to identify the SRI strategies and tools used in planted forests investments (Figure 4.1). Among the most frequent categories of stakeholders there are SRI consultants and advisors (72), followed by investment companies (66), SRI associations and forum (36), plantation companies (33) and investors (29). A complete list of organizations is provided in Annex 7.1.

More into details (Figure 4.2): investors, plantation companies and investment companies identified are operating primarily in Brazil (24), followed by Uganda (11), Vietnam (10) and Uruguay (8). The average number of countries in which organizations are operating is 1.7, with few large investment companies operating in up to 9 countries.

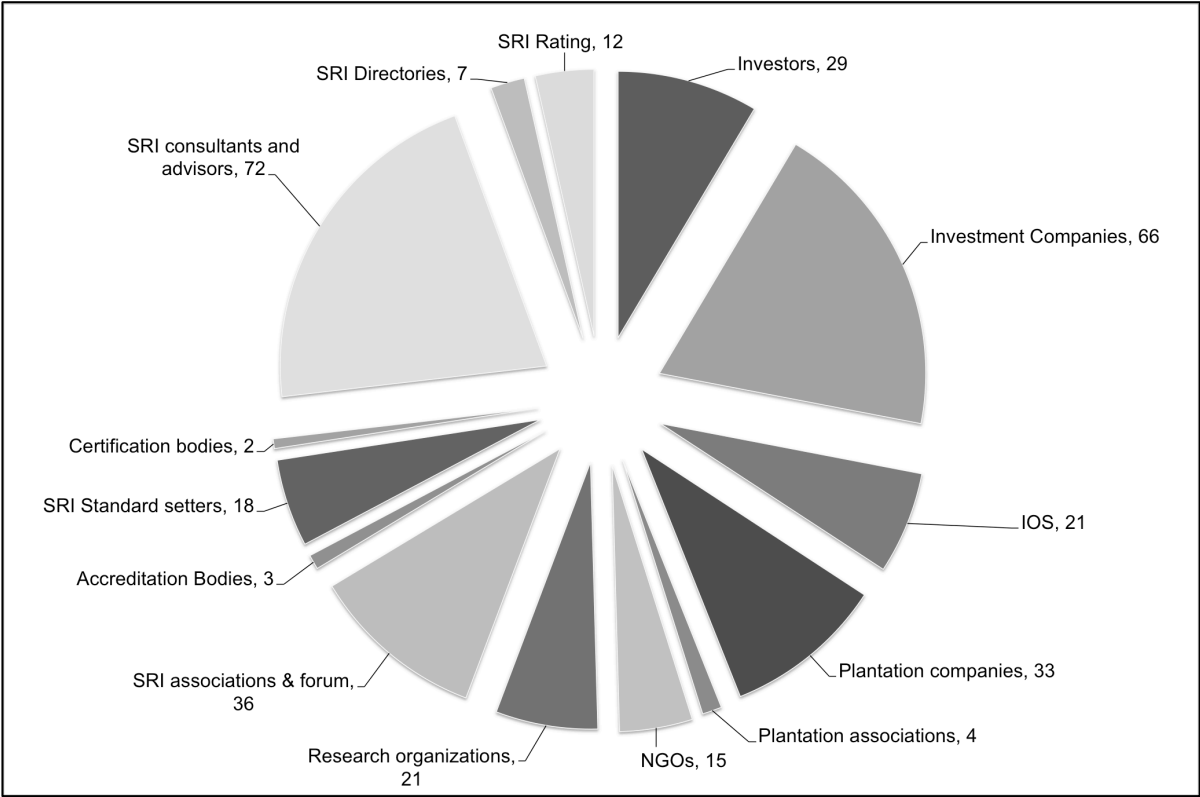


Figure 4.1 – Organizations operating with Sustainable and Responsible Investments in planted forests.

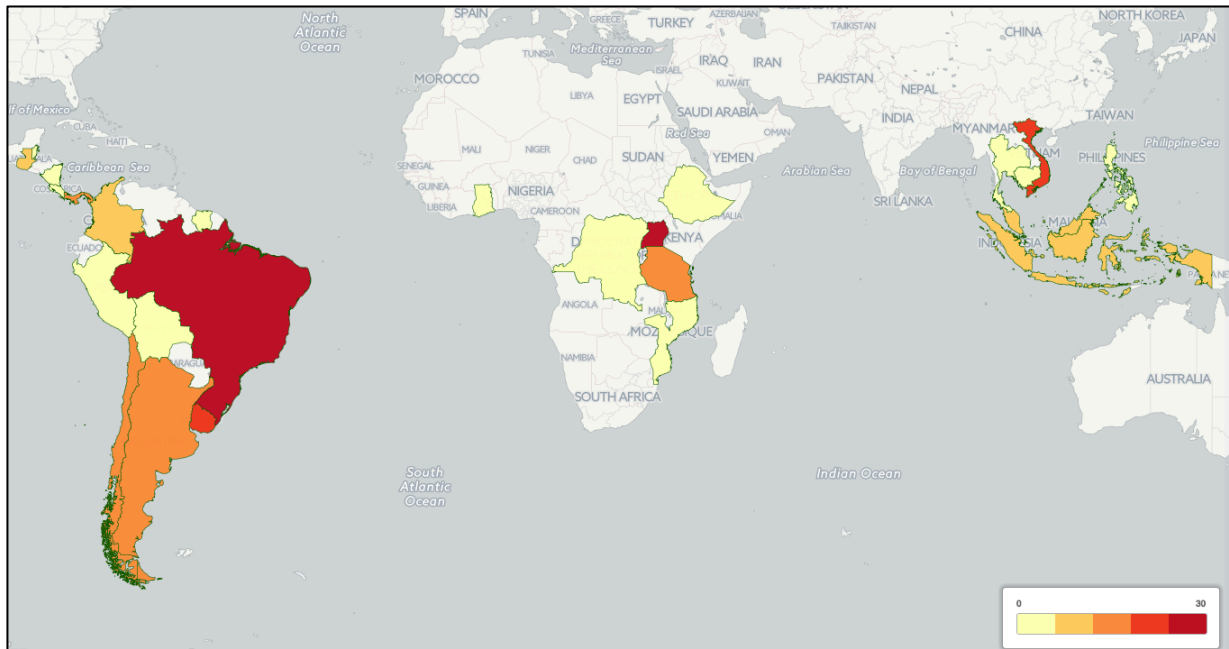


Figure 4.2 – Number of investors, investment companies and plantation companies operating SRI in planted forests in emerging markets.

The organizations reviewed can be allocated along the planted forests investment process (Figure 4.3). Three groups of organizations have been identified: market players (white background), SRI infrastructures (orange background) and Governments and Civil Society (green background). The financial flow typically goes from institutional and retail investors to investment companies through financial pooling instrument such as banks and funds. Investment companies are then allocating investments to plantation companies eventually integrated with processing industries.

Concerning SRI infrastructures, accreditation bodies are accrediting both certification bodies and SRI rating. Certification bodies are controlling the application of standards at plantation companies and processing industries level, while SRI ratings are scoring the quality of investment companies, funds and banks.

SRI standard setters are independently developing standards and rating systems to be controlled by certification bodies and SRI rating. SRI consultants and advisor together with SRI associations, forum and directories are providing consultancy and advocating services on SRI.

The most common SRI instruments used by the identified investors, investment companies and plantation companies are the FSC voluntary certification, followed by carbon standards as the Verified Carbon Standard (VCS) and Climate Community and Biodiversity Standard (CCB). Some organizations are not using SRI tools while other can reach up to 7 SRI tools used contemporaneously (Figure 4.4).

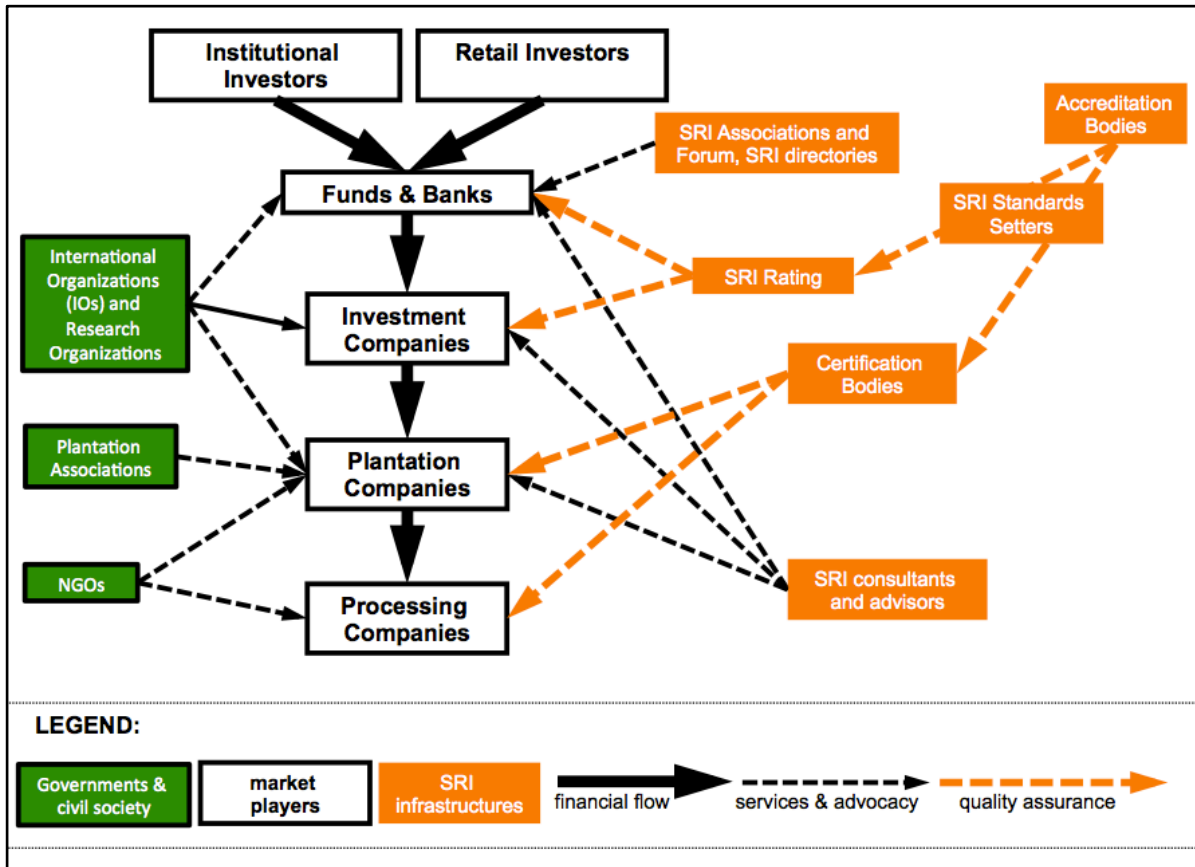


Figure 4.3 – Role of stakeholders in SRI in planted forests.

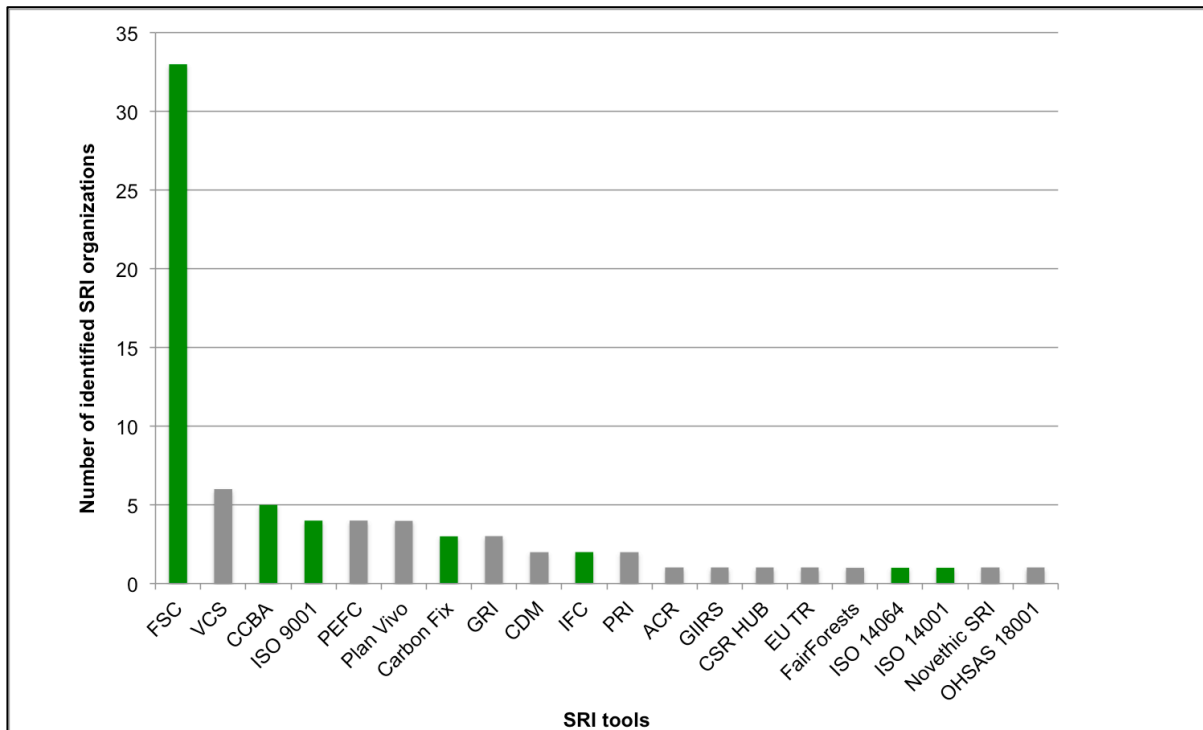


Figure 4.4 – Number of organizations using the SRI tools (in green the SRI tools included in the case studies).

4.2 SRI tools for the planted forests sector

The key features of the identified SRI tools are presented in the following pages. A complete list of the key features of SRI tools as well as a description of each instrument are provided in Annex 7.2 and Annex 7.3 respectively.

4.2.1 Type of SRI tools

A total number of 50 SRI tools have been identified (Table 4.1). The most frequent instruments are management standards (11), followed by bank investment policies (9) and investment ratings (8). The less represented instruments are codes of conduct and investment indexes. The number of codes of conduct is potentially much higher but only a representative sample has been considered. Nine country indicators have also been analysed and considered. These indicators are useful in the light of the application of the system of SRI classification to compare the suitability of countries to host planted forests investments.

Table 4.1 – Corporate Social Responsibility tools applied to planted forests investments.

TYPE OF TOOL	NUMBER	INSTRUMENTS
MANAGEMENT STANDARD	11	<ul style="list-style-type: none"> • American Carbon Registry (ACR) • Clean Development mechanism (CDM) • Climate Community and Biodiversity Standards (CCB) • Fair Trade Standard for Timber • Forest Stewardship Council (FSC) • ISO 14001 • Programme for Endorsement of Forest Certification Schemes (PEFC) • Plan Vivo • SA8000 • The Gold Standard • Verified Carbon Standard
BANK INVESTMENT POLICY	9	<ul style="list-style-type: none"> • ABN AMRO Forest and Plantation Policy • Bank of America • Citigroup Environmental and Social Risk Management Policy • Goldman Sachs Environmental Policy Framework • HSBC • 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 • Asset4ESG • 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 Investments (UN PRI)
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 measure 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 (WGI)

Source: own elaboration

4.2.2 Specificity and governance

Out of the 50 SRI tools analysed, only two standards are specific for planted forests: the Clean Development Mechanism⁸ and The Gold Standard. The majority of the instruments have a broad sectoral approach (29) or a forest sector focus (19), hence including both natural forest and planted forests. Management standards include all the planted forests specific and the majority of the forest specific tools (Figure 4.5). Legality benchmarks (e.g.: Lacey Act) and investment guidelines (e.g.: WWF Responsible Investment Guide) are mostly forest specific, on the contrary, reporting and investment standards have all a broad sectoral approach.

Concerning the governance (Figure 4.6), 60% of the instruments are produced and managed by business-oriented organizations, followed by government (22%), NGOs (16%) and academic (only 1 instrument). NGOs are actively developing management standards, codes of conduct and investment guidelines. On the other side, investment index, bank investment policies and investment rating are predominantly developed and managed by business organizations. Government are active in developing and managing legality benchmarks and investment standards. Only one instrument, the Ecobanking Project, is having a strong academic component.

⁸ CDM can be applied to a wide range of sectors but it has also a specific methodological part dedicated to afforestation/reforestation projects, hence is categorized as planted forests specific.

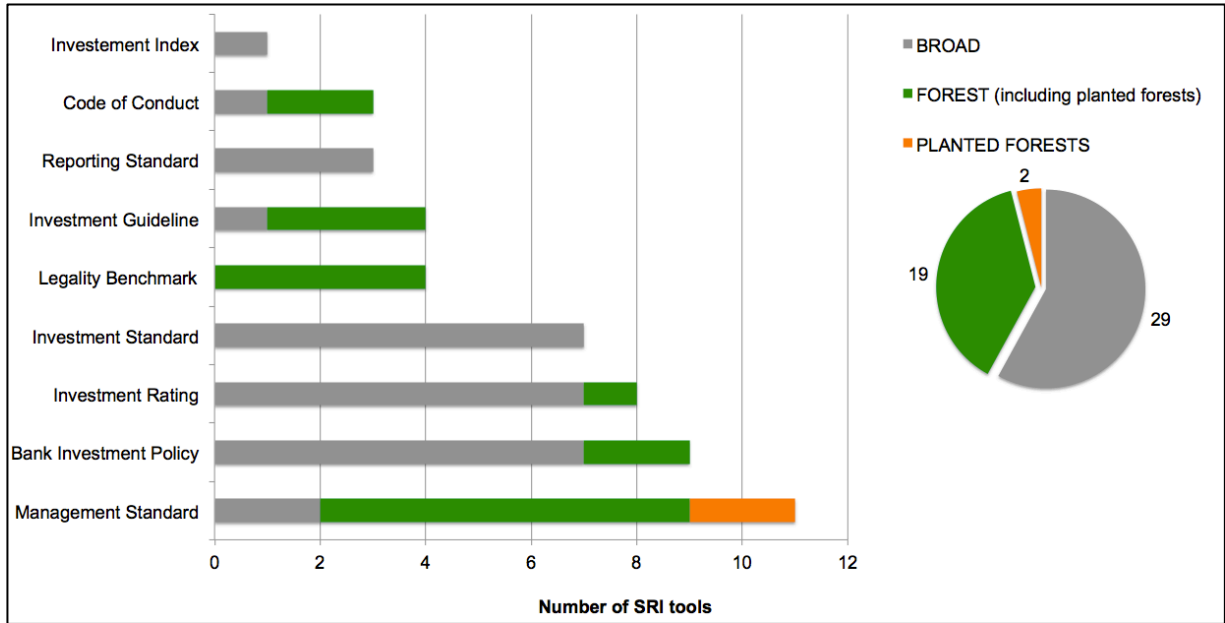


Figure 4.5 – Specificity of SRI tools by type of instrument. The number of codes of conduct is underestimated and is only representing the a sample of the available instruments.

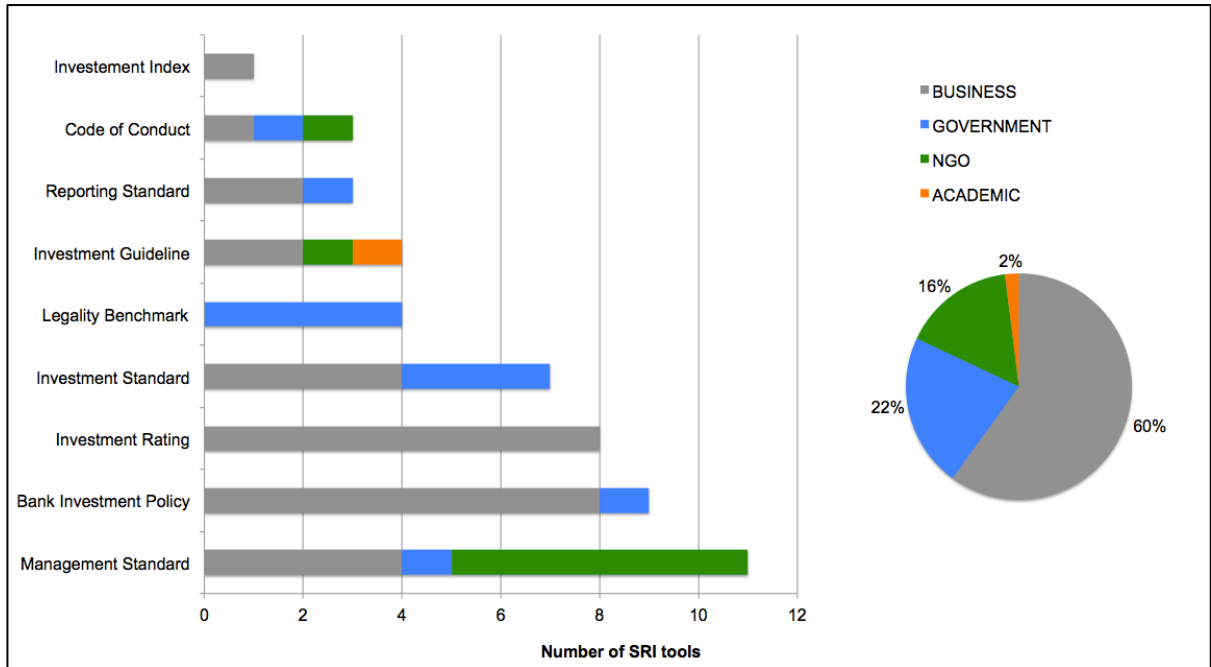


Figure 4.6 – Governance structure of SRI tools by type of instrument.

4.2.3 Investment process stage and level of control

SRI tools can be classified in classes of targeted users. In particular four categories of users have been identified along the planted forests investment process: investors, investment companies, plantation companies and processing industries (Figure 4.7). Investors are using 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 rating and investment standards while plantation managers are concentrating their effort on management standards. Processing industries use the more diversified type of instruments, on the contrary investment companies have used a restrict set of instruments.

This study also distinguishes SRI instruments based on the level of control: from the lowest signature/participation to the more complex certification based on system of third party accredited quality control. Most of SRI tools used by investors (25 out of 31) have low level of control, only requiring signature/formal participation commitment to a generic program or at the most a conformity declaration related to a standard (Figure 4.8). A similar situation is founded for investment companies. On the contrary plantation companies and processing industries are using a wide range on SRI tools with high level of control. A possible interpretation is the historical development of standards. At the early stage of standardization process the number of instruments is high and the level of external control is very low. While time is passing the best performing instruments are selected and are brought to higher level of control, also stimulated by the competition between instruments. This process of positive selection seems to be already mature at the latest stages of the planted forests investment process (plantation companies and processing industries) while it is still on going at the early stage of the investment process (investors and investment companies). Most of the management standards used at plantation and processing level have been establishing systems of third party accredited certification since early 1990s (e.g.: FSC). At investors' level today we are seeing the first step toward third party accredited rating (e.g.: Global Initiative for Sustainable Rating – GISR⁹).

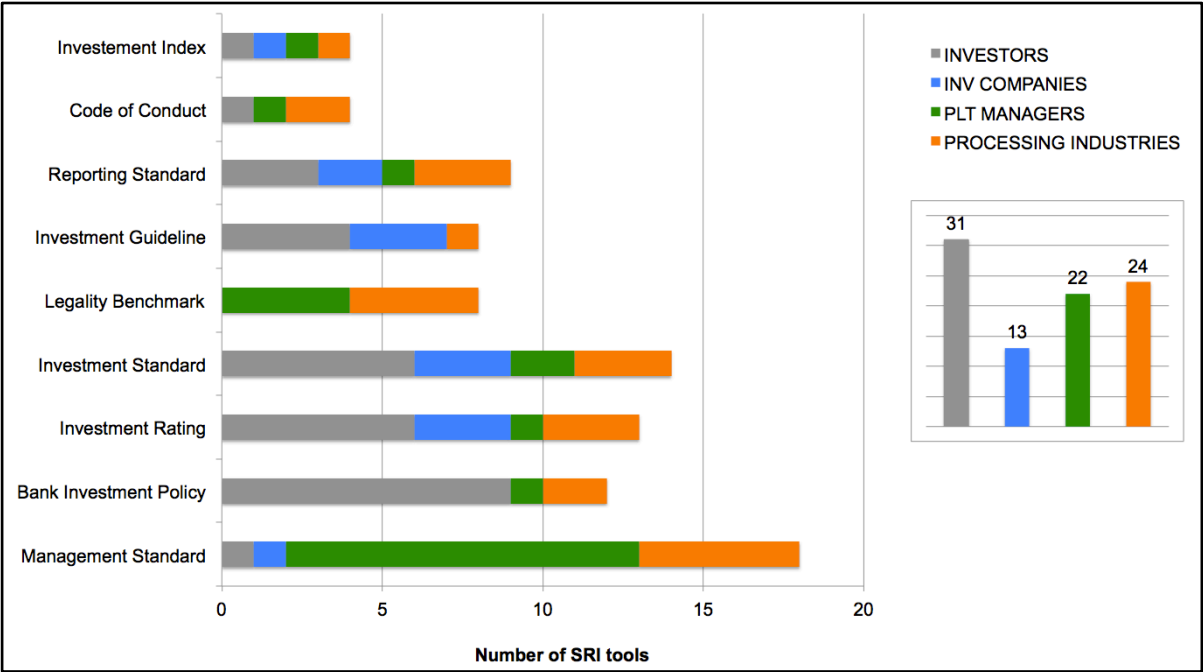


Figure 4.7 – Users of SRI tools by type of instruments.

⁹ Global Initiative for Sustainable Rating – GISR: www.ratesustainability.org

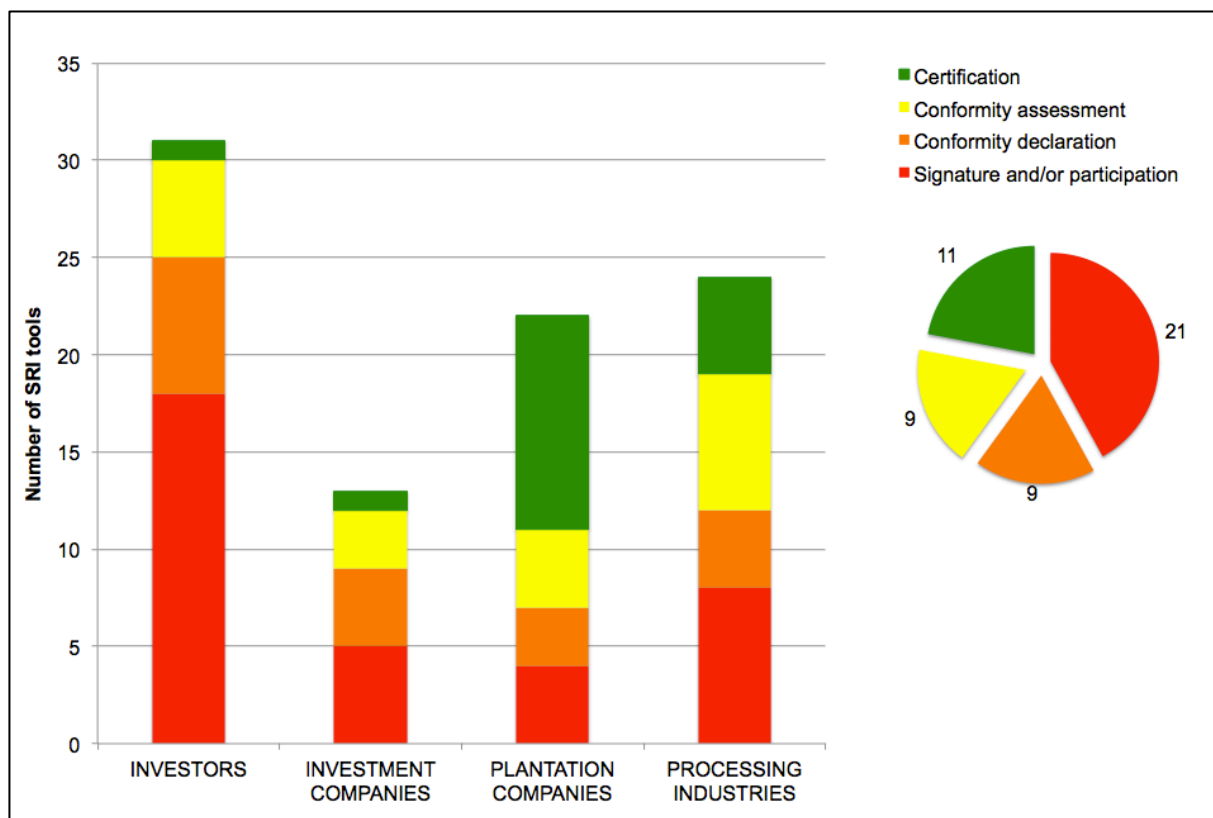


Figure 4.8 – Number of SRI tools and level of control used by stakeholders.

4.2.4 First publication, coordination, geographical origins and application, market relevance

Looking at the historical perspective (Figure 4.9), most of the instruments have 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 Equatorial Principles, Global Compact and Principles for Responsible Investments by the UN bodies;
- 2007-2010, a third group have entered the market as a result of the uprising of the environmental, social and governance topics in the finance sector after the 2007-2009 financial crisis (e.g.: ImpactAsset, GIIRS, IRIS, etc.);
- 2010-present, an upsurge of legality initiatives connected to the timber sector (e.g.: EU Timber Regulation).

Most of the tools have implementing authorities with the headquarters in Europe and USA, suggesting the close link between responsible investors, mostly located in Europe and USA, and supply of instruments by the market.

Concerning coordination between instruments, almost 20% of instruments are standing alone, with no specific reference or linkage with other SRI market instruments. Almost 50% of the instruments have at least one connection with other SRI tools with investment guidelines (e.g.: the WBCSD Sustainable Procurement of Wood and Paper-based Products Guide and Resource Kit and the WWF Responsible Investment Guide) connecting to as much as 7 SRI tools. Lastly, concerning the market share variable, the data gathered do not easily allow a

comparison being either referring to AUM, hectares of plantations, cubic meters or number of financial players involved.

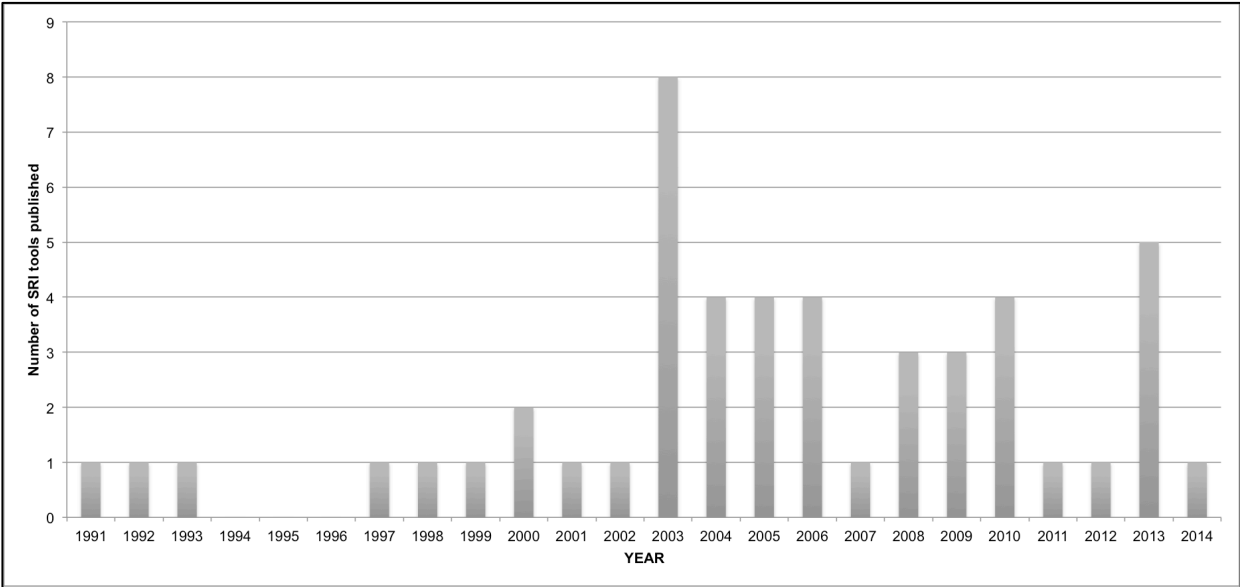


Figure 4.9 – Number of SRI tools published in the period 1991-2014.

4.3 SRI tools quality assessment

4.3.1 Top scoring issues in SRI tools

The contents analysis of the 50 SRI tools resulted in the definition of 7 sections of SRI, 22 sub-sections and 155 issues (Annex 7.4). The number of issues differs for each section (Figure 4.10). The sections with the highest number of issues are Environment (34) and Supply chain and traceability (30). A higher 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.

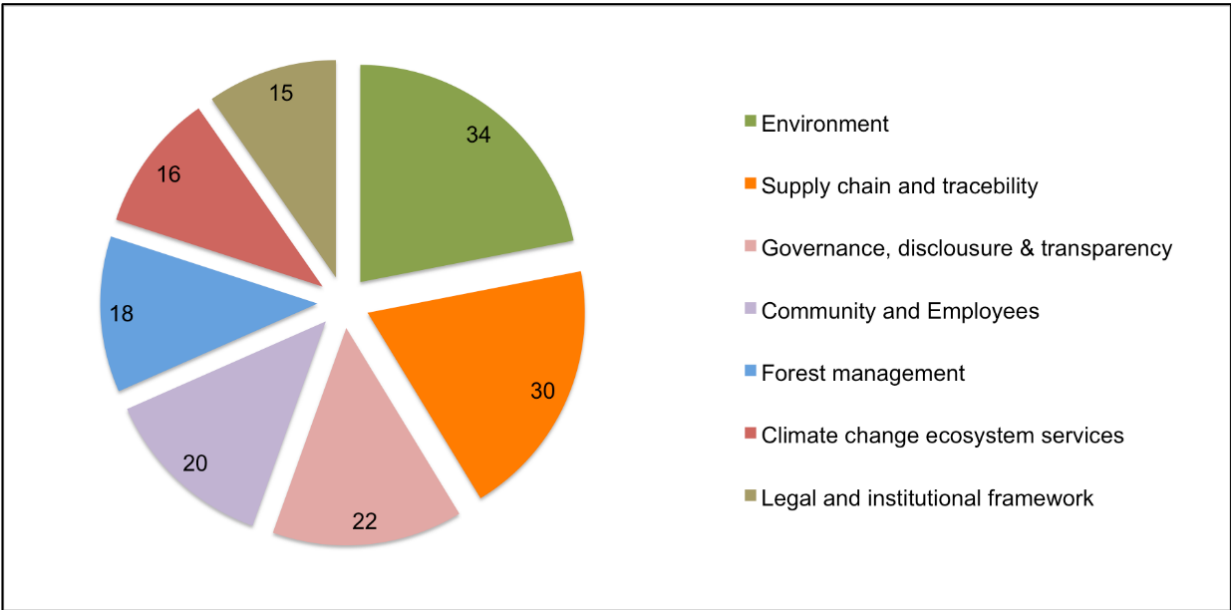


Figure 4.10 - Number of issues identified by Sections.

The most frequent 25 issues are reported in table 4.2. The use of “Third party certification schemes” is the most frequent issue and is found in 37 SRI tools out of the 50 analysed. The sections “Legal and Institutional framework” and “Environment” are the most represented, respectively with 12 and 9 issues among the top 25 issues. Respect of laws, avoidance of illegal logging and High Conservation Value Forest (HCVF) designation are among the most represented issues. The “Community and Employees” section is accounting for three issues concerning tenure rights, safety and social impact assessment. Only one “Forest Management” issue is represented and addressing the aspect of forest damages due to fire, diseases, etc. No “Climate Change Ecosystem services” and “Governance, disclosure and transparency” issues are found in the list of the top 25 issues. Table 4.3 highlights the top three issues for each section.

Table 4.2 - The 25 most frequent issues found in the 51 SRI tools analysed.

RANK	SECTION	SUBSECTION	ISSUE	ISSUE FREQUENCY
1	Supply chain and traceability	International sustainability standards	Third party certification schemes (e.g.: FSC certification) for the production or sourcing of forest risk commodities	37
2	Legal and institutional framework	Legislation	Respect of local and national applicable laws and regulations	34
3	Environment	Environmental impacts	Environmental impact assessment (including emergency, hazards and risks)	31
4	Legal and institutional framework	Legislation	Conformity to labour and fee legislation (e.g.: ILO standards)	29
5	Environment	High Conservation Value Forests	Forest areas that contain globally, regionally or nationally significant concentrations of biodiversity values (this includes: protected areas, rare or threatened species, endemic species, and seasonal concentrations of species)	29
6	Community and Employees	Local communities and indigenous	Forest management not threatening/diminishing resources (food included) or tenure rights of indigenous people	28
7	Legal and institutional framework	Illegal logging	Bribes for concessions	26
8	Community and Employees	Workers	Operational guidelines and training for health and safety procedure and equipment's of forestry workers (include emergency training)	25
9	Environment	Environmental impacts	The natural water cycle is not disturbed or is restored (include riparian buffer zones along water bodies)	24
10		High Conservation Value Forests	Forest areas that are in or contain rare, threatened or endangered ecosystems	24
11		Plantation design and natural	Primary forests and wetlands are conserved	24

RANK	SECTION	SUBSECTION	ISSUE	ISSUE FREQUENCY
		forests		
12	Legal and institutional framework	Legislation	Compatibility with international or national agreements signed by the hosting country	22
13		Illegal logging	Outside concession area	22
14			Protected areas	22
15			Without permits	22
16			Prohibited specie	22
17	Community and Employees	Local communities and indigenous	Social impact assessment	22
18	Environment	Environmental Management System	Reduction of the environmental impacts of the organization (energy efficiency, use of recycle materials, LEED certification, etc.)	22
19	Legal and institutional framework	Illegal logging	No illegal logging exists	21
20	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)	21
21	Environment	High Conservation Value Forests	Forest areas that provide basic services of nature in critical situations (this includes: protection of watersheds, and protection against erosion and destructive fire)	21
22			Forest areas fundamental to meeting basic needs of local communities	21
23			Forest areas critical to local communities' traditional cultural identity	21
24	Legal and institutional framework	Illegal logging	Lack of respect of billing regulations	20
25		Illegal logging	Management plans	20
26		Illegal logging	Illegal accounting practices	37

Table 4.3 – Top 3 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 sustainable produced materials up and down the organization value (include price premium)	37
Legal and institutional framework	Respect of local and national 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 emergency, hazards and risks)	3
	Forest areas that contain globally, regionally or nationally significant	5

	concentrations of biodiversity values (this includes: protected areas, rare or threatened species, endemic species, and seasonal concentrations of species)	
	The natural water cycle is not disturbed or is restored (include riparian buffer zones along water bodies)	9
Community and Employees	Forest management not threatening/diminishing resources (include food) or tenure rights of indigenous people	6
	Operational guidelines and training for health and safety procedure and equipment of forestry workers (include 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 (include 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 public 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

4.3.2 Level of control of issues

Beyond the frequency, the level of control is playing a major role in defining the importance of issues. The inclusion of the control-weighting factor (scale 1 to 4) allows the scoring of issues based on the combination of frequency and level of control (Table 4.4). Respect of laws, environmental impact assessment, third party certification, tenure rights, forest damages, communication between stakeholder and climate change policy are the top ranking issues for each section. Table 4.5 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 4.4 – 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 of local and national applicable laws and regulations
78	Environment	Environmental impacts	Environmental impact assessment (including emergency, 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	Local	Forest management not threatening/diminishing

	Employees	communities and indigenous	resources (include 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 & transparency	Stakeholders	Communication between stakeholders is efficient
41	Climate change ecosystem services	Green House Gases	An organization policy recognizing the role of forests in climate change mitigation exists

Table 4.5 – 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 exceptions
9		Health and vitality of forest ecosystem	Thinning and pruning in planted forests are carefully planned and implemented
9			Preplanning to ensure seed and seeding availability for plantation establishment
8	Governance, disclosure & transparency	Governance	Organization is not suffering from negative publicity for environmental, social or ethical reasons
8			The organization is monitoring customers satisfaction and integrating customers feedback
7		Disclosure and reporting	Reporting of transaction that reached Financial Close
7	Climate change ecosystem services	Green House Gases	The organization is not public declared as against Kyoto Protocol
6			Incentives for life cycle assessment
6		Ecosystem services	Biodiversity offsetting
8	Environment	Plantation design and natural forests	Protection of World Heritage sites
6			Minimum percentage of project area (e.g.: 10%) is protect for biodiversity and ecosystems
3		Environmental Management System	Noise of processing plant (e.g.: mill) in proximity of human settlements
15	Community and Employees	Local communities and indigenous	Benefits sharing system should be in place regarding timber, 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)

4.3.3 Performance of SRI tools

Concerning the performance of SRI tools (Figure 4.11), the analysis reveals the different nature of SRI tools. Remarkable differences exist between instruments such as codes of conduct (labelled CC) and management standards (SM). Investment guidelines have a broad perspective and they cover the greatest number of issues

(orange bar) but have no level of control. Management standards and investment ratings tend to have a narrower approach with less issues covered but with very high control level such conformity assessment or certification. On the contrary, codes of conduct, legality benchmarks and bank investment policies tend to cover a restricted number of issues as well with very low level of control as signature/participation or conformity declaration.

The SRI tools with the highest performance are reported in table 4.6. The Gold Standard (SM8) and the Forest Stewardship Council (SM3) are the SRI tools with the highest performance among the 50 SRI tools analysed (Figure 4.12). 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), followed by management standards (e.g.: FSC and The Gold Standard), reporting standards as the GRI (RP2) and bank investment policies as the Goldman Sachs – Environmental Policy (IP4). The more complete the SRI tools are (number of issues covered), the more complex is the level of control. Hence the application of weights based on level of control is not modifying the overall picture.

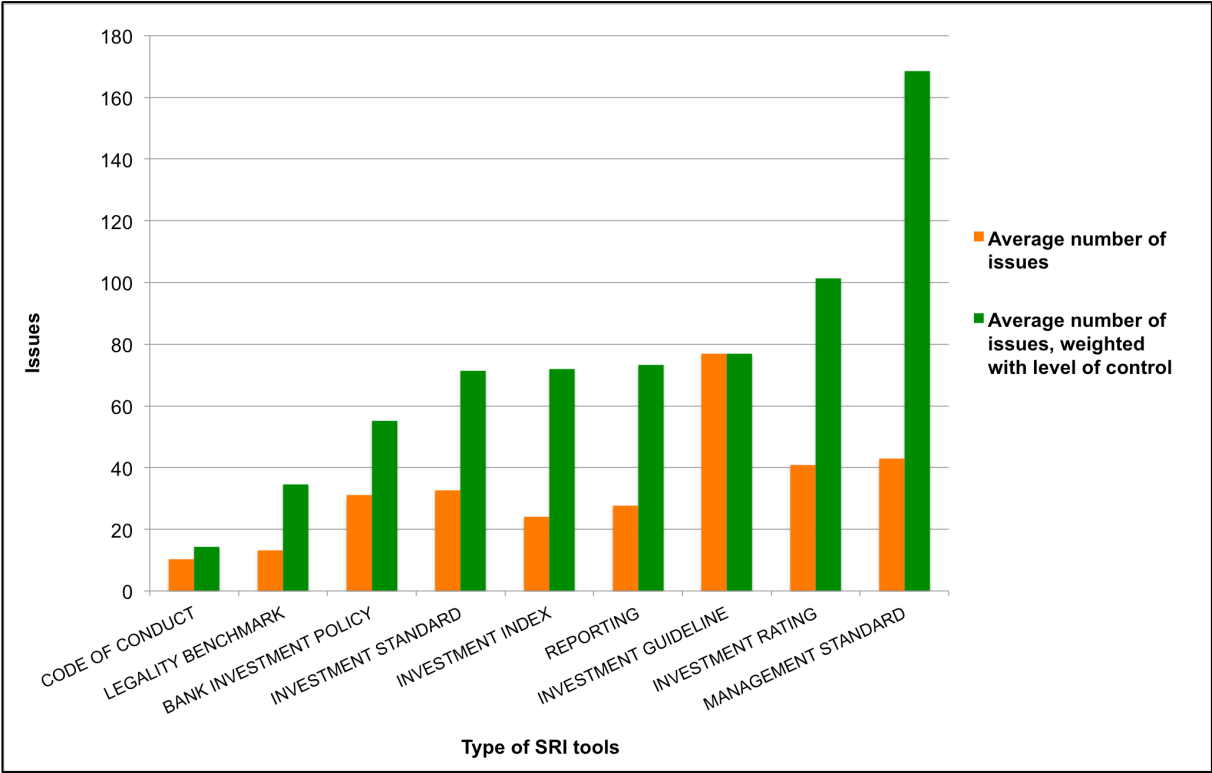


Figure 4.11 - Performance by type of SRI tools based on frequency of issues. In green the occurrence of the issues is weighted with the level of control.

Table 4.6 - SRI tools with highest performance by type.

TYPE OF SRI TOOL	NAME	CODE	ISSUES COVERED WITH LEVEL OF CONTROL	LEVEL OF CONTROL
BANK INVESTMENT POLICY	ABN AMRO Forest & Plantation Policy	IP1	105	2
	ING ESR Policy	IP8	75	1
CODE OF CONDUCT	CEPI - Legal Logging Code of Conduct for the Paper Industry	CC1	24	1

	Pacto Intersectorial por la madera legal	CC2	17	1
INVESTMENT INDEX	FTSE4Good Index Series	II2	72	3
INVESTMENT GUIDELINE	WWF Responsible Investment Guide	IG4	114	1
	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
	IFC Performance Standards	SI7	102	2
LEGALITY BENCHMARK	EU FLEGT	LB2	53	3
	EU Timber Regulation	LB3	49	3
MANAGEMENT STANDARD	The 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

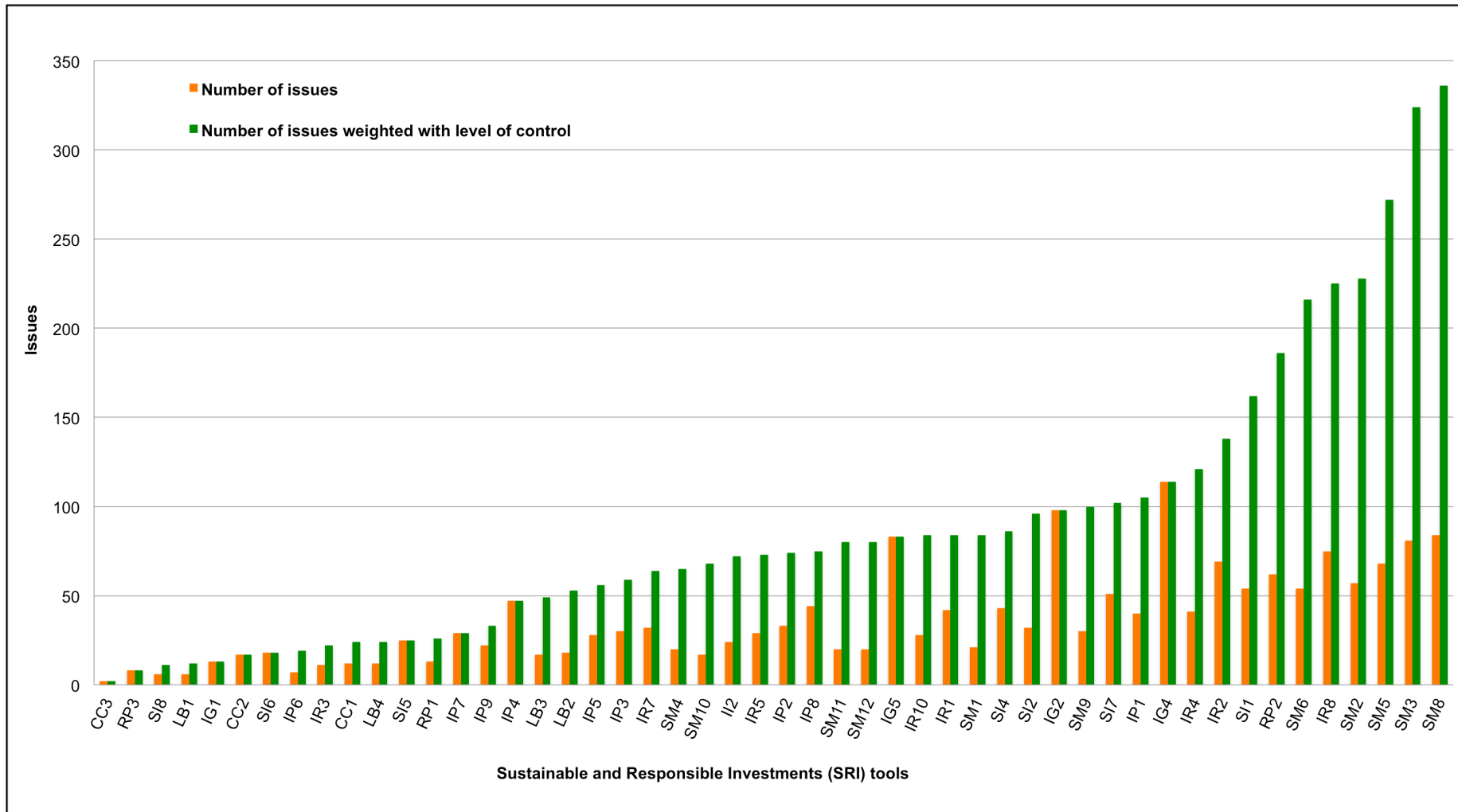


Figure 4.12 – Performance of SRI tools based on frequency of issues. In green the occurrence of issues is weighted with level of control.

4.4 ESG risk assessment

The first part of the ESG risk assessment consists in the definition of the level of risk of the country. Among the 10 country indicators identified (Table 4.7), the Global Risk 2013 appeared to be the most suitable for including the three countries, Uganda, Cambodia and Vietnam. The Global Risk 2013 analyses 50 global risks in terms of impact, likelihood and interconnections, based on a survey of over 1000 experts from industry, government and academia. It ranks national government's overall risk management effectiveness of monitoring, preparing for, responding to and mitigating against major global risks (e.g.: financial crisis, natural disasters, climate change, pandemics, etc.). The score for the case studies countries are as follow: 58 Cambodia, 42 Uganda and 48 Vietnam. The highest the score the lower the global risk for the country.

After defining the country risk, the multiple case studies analysis is focusing on the ESG Risk Assessment at project level.

Tables 4.8 and 4.9 are respectively reporting the issues overestimated by SRI stakeholder and those underestimated. In fact, the comparison between the analysis of SRI tools (RISK RANK DESK - RRD) and the findings from case studies (RISK RANK FIELD - RRF) reveals that the majority of issues are overestimated by SRI stakeholders (red colour) and only few of them (green colour) were confirmed as the most 25 relevant in the field. For example, third party certification and High Conservation Value Forests (HCVFs) have among the highest RRD score but the case studies show that they have a rather low RRF. In other words, most of the SRI tools are focusing on issues that on-the-ground are not the major risk sources. Few exemptions are tenure rights, health and safety of workers, social impact assessment and illegal logging. On the other side, in Table 4.7 it clearly appears that the 25 most important issues assessed with case studies (RRF) are rarely considered relevant inside SRI tools. For example climate change impacts, long term financial sustainability, poverty reduction and encroachment are ranked as the most dangerous sources of risk across the 12 case studies, but they only beyond the 25th position in the desk analysis of SRI tools.

Table 4.7 – List of country indicators applicable to the ESG risk assessment.

COUNTRY INDICATOR	GOVERNANCE	FIRST PUBLIC ACTION	COVERAGE	ORIGIN	FOCUS	KH* RANK	KH SCORE	UG RANK	UG SCORE	VN RANK	VN SCORE
Corruption Perception Index	NGO	1995	177 countries	Europe	It is a measure of the perceived levels of public sector corruption in 176 countries and territories around the world. The CPI currently ranks 177 countries "on a scale from 100 (very clean) to 0 (highly corrupt)	160	20	140	26	116	31
GINI INDEX	Government	1978	all countries	Europe	Gini index measures the extent to which the distribution of income or consumption expenditure among individuals or households within an economy deviates from a perfectly equal distribution. Thus a Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality.		31.8		44.6		35.6
Index of Economic Freedom	Academic	1994	180 countries	North America	It measures economic freedom based on 10 quantitative and qualitative factors. Each of the ten economic freedoms within these categories is graded on a scale of 0 to 100.	108	57.4	91	59.9	147	50.8
Doing Business	Government	2003	185 countries	North America	It provides objective measures of business regulations and their enforcement.	135	55.33	150	51.11	78	64.42
Global Risks 2013	Business	2005	all countries	Europe	It analyses 50 global risks in terms of impact, likelihood and interconnections, based on a survey of over 1000 experts from industry, government and academia. It ranks national government's overall risk management effectiveness of monitoring, preparing for, responding to and mitigating against major global risks (e.g.: financial crisis, natural disasters, climate change, pandemics, etc.).	48	58.4	108	42.7	86	48.57
Worldwide Governance Indicators (WGI)	Government	1996	215	North America	It reports six aggregate and individual governance indicators: Voice and Accountability, Political Stability and Absence of Violence, Government Effectiveness, Regulatory Quality, Rule of Law, Control of Corruption. The highest the percentile rank the best.		20.38		30.81		11.85
							40.28		19.91		55.92
							18.66		33.01		44.02
							39.23		44.5		28.23
							16.11		44.08		39.34
	16.27		13.88		36.84						

UN Security Council Sanctions Committees - Timber Export Sanction	Government	1946	193 countries	North America	The Security Council can take enforcement measures to maintain or restore international peace and security. Such measures range from economic and/or other sanctions not involving the use of armed force to international military action.	1		1		1	
EU Sanctions or restrictive measures in application of Reg. (EU) 995/2010	Government	2009	all countries	Europe	Restrictive measures imposed by the EU may target governments of third countries, or non-state entities and individuals (such as terrorist groups and terrorists). They may comprise arms embargoes, etc. as well as restriction on import of timber.	1		1		1	
FLEGT Progress in Voluntary Partnership Agreements	Government	2003	26 countries	Europe	Up-to-date status of Voluntary Partnership Agreements, a legally binding trade agreement between the EU and a timber-exporting country outside the EU.	1		0		1	
Illegal Logging index	Academic	2001	all countries	Europe	Up-to-date status of illegal logging activities and studies	90%		NA		40%	

*: KH= Cambodia, UG = Uganda, VN = Vietnam

Table 4.8 – Issues overestimated by SRI stakeholders.

KEY ISSUE	RISK RANK DESK	RISK RANK FIELD
Third party certification schemes (e.g.: FSC Certification) for the production or sourcing of forest risk commodities	1	48
Respect of local and national applicable laws and regulations	2	27
Environmental impact assessment (including emergency, hazards and risks)	3	25
Conformity to labour and fee legislation (e.g.: ILO standards)	4	52
Forest areas that contain globally, regionally or nationally significant concentrations of biodiversity values (this includes: protected areas, rare or threatened species, endemic species, and seasonal concentrations of species)	5	115
Forest management not threatening/diminishing resources (include food) or tenure rights of indigenous people	6	5
Bribes for concessions	7	75
Operational guidelines and training for health and safety procedure and equipment of forestry workers (include emergency training)	8	8
The natural water cycle is not disturbed or is restored (include buffer zones along water bodies)	9	34
Forest areas that are in or contain rare, threatened or endangered ecosystems	10	103
Primary forests and wetlands are conserved	11	49
Compatibility with international or national agreements signed by the hosting country	12	74
Outside concession area	13	99
Protected areas	14	79
Without permits	15	50
Prohibited specie	16	127
Social impact assessment	17	16
Reduction of the environmental impacts of the organization (energy efficiency, use of recycle materials, LEED certification, etc.)	18	87
No illegal logging exists	19	9
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	1
Forest areas that provide basic services of nature in critical situations (this includes: protection of watersheds, and protection against erosion and destructive fire)	21	104
Forest areas fundamental to meeting basic needs of local communities	22	64
Forest areas critical to local communities' traditional cultural identity	23	105
Lack of respect of billing regulations	24	59
Management plans	25	90

Table 4.9 – Issues underestimated by SRI stakeholders.

KEY ISSUE	RISK RANK DESK	RISK RANK FIELD
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	1
Plan for resources requirements and allocation (financial, human, machine, land)	75	2
Amounts of investments and/or expenditures in the forest sector and related sources	104	3
Climate change is affecting the ability of the organization to produce, source or supply commodities that are at risk	61	4
Forest management not threatening/diminishing resources (include food) or tenure rights of indigenous people	6	5
Revenue generated by the management of forest resources	94	6
Financial sources and investments in the forest sector guarantee the sustainability of management in the long term	105	7
Operational guidelines and training for health and safety procedure and equipment of forestry workers (include emergency training)	8	8
No illegal logging exists	19	9
Communication between stakeholder is efficient	28	10
Fuel, oil, toxic substances and waste are properly stored disposed	35	11
Presence of forest management plan (include Project Design Document)	63	12
Careful selection of sites, species and genotype adapted to local conditions	68	13
The project is reducing poverty	129	14
Compensation and benefits to increase workers loyalty, long term employment and relations	60	15
Social impact assessment	17	16
Presence of a person responsible for the control of pests and diseases	89	17
Prevention of encroachment	145	18
Origin of seed, plants, cuttings identified and certified	98	19
Amounts of investments from the local population in the forest sector	77	20
Data and maps for the characterisation of the forest estate exist (property, social and economic aspects, biophysical aspects)	62	21
Diversity in composition (size, spatial distribution, number of species and genetic, ages, structures) is preferred	69	22
Amounts of investments in research, technology, development and education	87	23
Long-term consequences of fertilization, pest control and disease management are assessed in forest plantations	81	24
Environmental impact assessment (including emergency, hazards and risks)	3	25

Concerning the risk of the different case studies, the risk generated by the most important 25 issues can explain the overall 155 issues risk level. This means that looking at the risk of the first most important 25 key issues is possible to have an overall figure of the whole project risk (Figure 4.13). Only two case studies, the UG_14_1 and UG_14_2 show a relevant increase in the absolute risk value if the 100 top issues or all issues are considered. A potential explanation is the different number of issues that have been assessed across case studies. The total number of issues assessed in each project depend on:

- the availability of data and information on the hand of stakeholders and investment managers;
- the time provided by project's stakeholders to interviewers for the ESRA;
- the applicability of issues at project level (e.g.: smallholders).

In figure 4.14 and table 4.10 the risk for the most important 25 issues and the effect of the mitigation strategies implemented by the investment managers are reported. The green bars represent the amount of the mitigation obtained through the implementation of SRI tools. SRI tools are positively influencing the risk mitigation, accounting for a percentage of risk mitigation that ranges from 34.31 till 60.63%.

Table 4.11 summarizes respectively the best risk mitigation strategies encountered in the 12 analysed projects. The SRI tools found in case studies are:

- FSC Forest Management/Chain of Custody certification, 5 projects;
- ISO9001, 4 projects;
- FSC Chain of Custody, 3 projects;
- Internal codes of conduct, 3 projects;
- Nursery national certification, 2 projects;
- Global Compact, 1 project;
- CCB certification, 1 project;
- CarbonFix Standard certification, 1 project.

Table 4.12 lists the major positive ESG impacts of FSC certification.

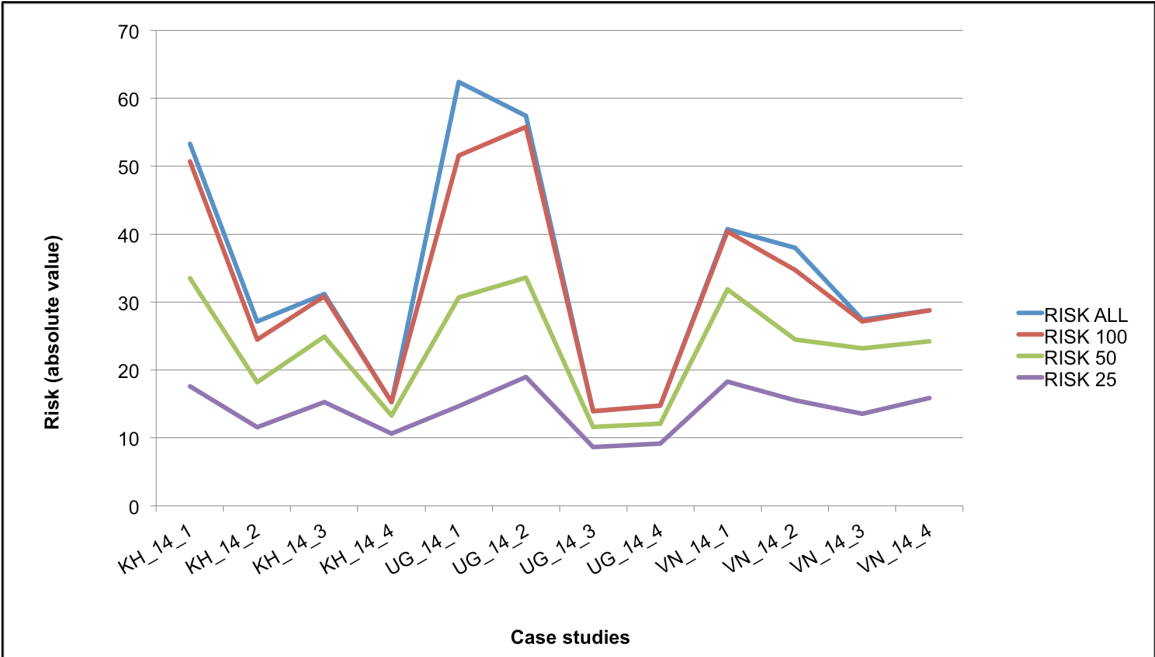


Figure 4.13 – Variation of risks (RR) among the 12 case studies based on the use of R referred to the most important 25, 50, 100 and all issues.

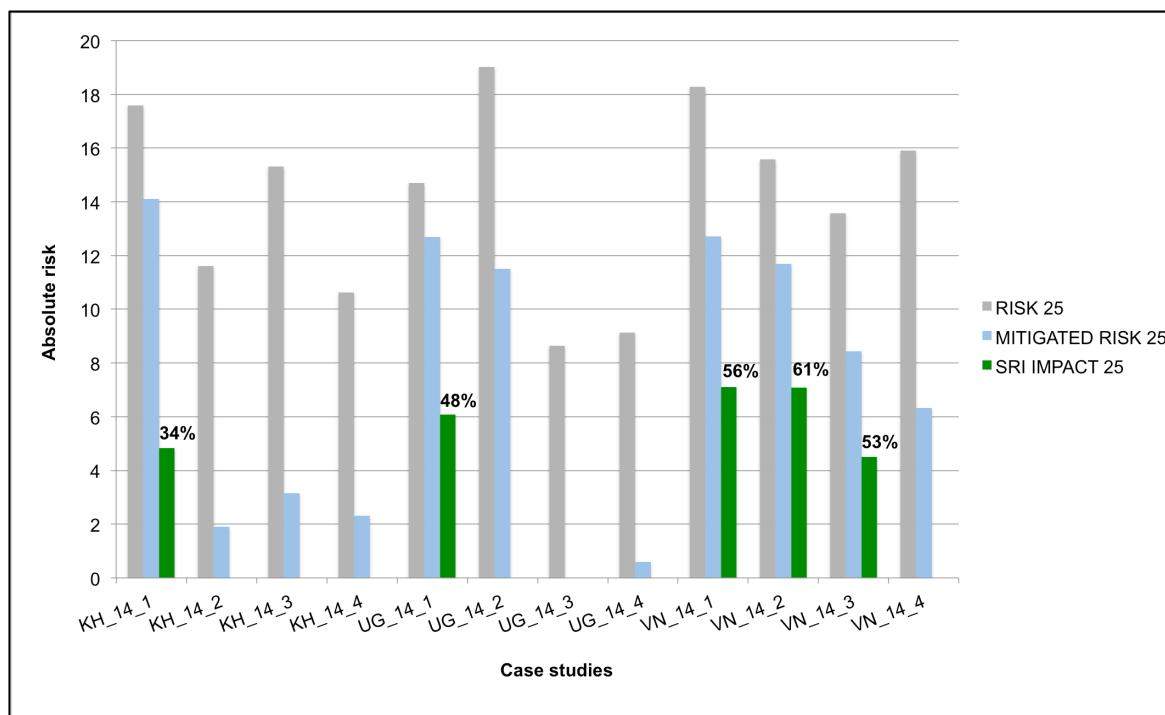


Figure 4.14 – Absolute value of risk, mitigated risk and impact of SRI strategies on 12 investments in planted forests.

Table 4.10 - Summary of ESG risk assessment for 12 case studies.

	KH_14_1	KH_14_2	KH_14_3	KH_14_4	UG_1_4_1	UG_1_4_2	UG_1_4_3	UG_1_4_4	VN_14_1	VN_14_2	VN_14_3	VN_14_4
Risk 25	17.5	11.6	15.3	10.6	14.7	19.0	8.6	9.1	18.2	15.5	13.5	15.9
Rr 25	3.5	9.7	12.2	8.3	2.0	7.5	8.6	8.5	5.6	3.9	5.1	9.6
% Rr 25	19.8	83.6	79.4	78.2	13.7	39.5	100.0	93.4	30.5	25.0	37.8	60.3
Rr 50	7.6	13.8	18.1	10.3	2.7	11.2	10.2	10.3	8.2	6.8	7.6	13.9
Rr 100	13.1	19.3	21.0	11.6	7.4	26.9	12.7	13.1	10.6	12.0	10.5	17.7
Rr Total	14.3	21.9	21.0	11.6	8.8	28.2	12.7	13.1	10.6	13.6	10.7	17.7
Mitigated Risk 25	14.1	1.9	3.2	2.3	12.7	11.5	0.0	0.6	12.7	11.7	8.4	6.3
% Mitigated Risk	80.1	16.4	20.6	21.8	86.3	60.4	0.0	6.5	69.5	75.0	62.1	39.7
SRI Impact 25	4.8	0.0	0.0	0.0	6.1	0.0	0.0	0.0	7.1	7.1	4.5	0.0
% SRI Mitigated Risk	34.3	0.0	0.0	0.0	47.9	0.0	0.0	0.0	55.9	60.6	53.4	0.0
Irr%	15.0	15.2	16.5	19.6	16.7	12.0	NA	NA	27.2	17.8	17.6	15.8
SRI Tools	4	2	0	0	6	0	0	0	2	3	3	0

Table 4.11 - Best Environmental, Social and Governance risk mitigation strategies found in 12 case studies in Cambodia, Uganda and Vietnam.

RISK SECTION	ISSUES	WHY?	WHERE?			BEST MITIGATION STRATEGIES
			KH	UG	VN	
Legal and institutional framework	No illegal logging exists	Encroachers are illegally charcoaling, grazing and farming inside conservation areas. Illegal logging and rubber harvesting (up to 10% of rubber is stolen) both inside plantation and in conservation areas. Sometime contracts between companies and Government requires the establishment of conservation areas.	X	X		Monitoring access of encroachers, fencing unplanted areas and patrolling. Partnership with Environmental NGOs. Agreement with local communities for fuelwood collection inside plantations. Tappers and forest workers living inside the plantation. Increasing ownership of plantations by local smallholders. Free seedlings and plantation management support available for local communities
	Respect of local and national applicable laws and regulations	Long process of land titles allocation and related corruption risks	X	X		Ethical code including corruption and facilitation avoidance procedures
	Conformity to labour and fee legislation (e.g.: ILO standards)	Child labour risk	X			ILO representatives monitoring the performance of companies
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)	Fire due to land clearing by neighbours and beekeepers. Grazing is not allowed inside plantations due to state regulation	X	X	X	Fire action plan, fire breaks, fire towers, improved access road, increased patrolling, information and support to neighbours suing fire for land clearing, water reservoirs, use of controlled burning, improve fire brigade equipment, unofficial grazing allow in stands older than 3 years
		Damage of young seedling by animals (e.g. squirrels)			X	Buffer area with grassland is kept around conservation areas
		Typhoons and cyclones			X	Improvement of seedlings, change of species, use of seedlings instead of cuttings, mix of species and hybrids, planned thinnings, avoid slashing of understory vegetation, diversification of stand structure with multiyear stands, communication to the population concerning the danger occurring during typhoons, harvesting procedures after typhoons and storage of logs far away from rivers
	Preplanning to ensure	Seedlings availability not	X			Ensure water availability and storages for nurserying

	seed and seeding availability for plantation establishment	enough to satisfy investment plan due to droughts (up to 20% loss of seedlings)				
		Poor quality of seedlings in particular for smallholders		X	X	Quality certification of nurseries, establishment of seed research center
	Diversification of forest products and services	Mono-species plantations with lack of diversification of products and services Investment plan affecting the selection of species	X	X	X	Testing of multiple species (included native) both with seedling and clones
	<ul style="list-style-type: none"> • Presence of forest management plan (include Project Design Document) • Financial sources and investments in the forest sector guarantee the sustainability of management in the long term 	Lack of planning			X	Presence of forest management plan. Collaboration with NGOs and development agencies
	Use of cultivation practices and prevention measures (maintenance of natural forest areas and strips) for limiting the spread of pest and disease in forest plantations)	Climate change decreases production of rubber (high temperature and extreme rains) and requires increased use of chemical treatments	X			Training for the use of chemicals
		Short rotation period decreasing soil fertility and increasing erosion			X	In collaboration with Environmental NGOs the rotation period is increased and timber gains price premium with third party certification
	Data and maps for the characterisation of the forest estate exist (property, social and economic aspects, biophysical aspects)	Lack of up-to-date maps and unclear border lines create conflicts with neighbours		X		GPS data of stands and borders of plantation, use of drones, land demarcation in collaboration with governmental officials
	Revenue generated by the management of forest resources	Difficult loans from banks			X	Third party certification improves the management and readability of documents and make loans easier to pass trough
Governance, disclosure &	<ul style="list-style-type: none"> • Communication 	Reputational risks due to lack of reporting and information	X	X	X	Agreements and collaboration with local and international NGOs, third party certification provide

transparency	between stakeholders is efficient • Publication of rights towards the forest area	disclosure Conflicts and communication with stakeholders (e.g.: local communities due to encroachment for agriculture activities)	X	X	X	free access to up-to-date reports and extract of forest management plan/project design document Community manager, seasonal crops allowed inside the plantation in the first 1-2 planting years, list of stakeholders, monthly meeting with stakeholders, community fire alert system, grievance mechanism performed by external consultant, compensatory measures, aid for relocation
	Organization legally identified	Political risks affecting the legitimacy of land title		X		Third party certification increase political legitimacy
	Community and Employees	• Forest management not threatening/diminishing resources (include food) or tenure rights of indigenous people • Prevention of encroachment • The project is reducing poverty • Benefits sharing system should be in place regarding timber, NTFPs and services	Plantations reduce the resources available to local population and generate encroachment. Workers from local communities tend to have higher absence rate	X	X	X
Water supplies local community		Conflicts with local communities	X	X		Creation of water reservoirs, river dams and water tanks for cattle and free access to water reservoirs inside the plantation, water filtering and water testing
Compensation and benefits to increase workers loyalty, long term employment and relations		Loss of workers loyalty and long term employment	X	X	X	Workers bonus based on productivity level, housing facilities near school, premium for low absence workers
Operational guidelines and training for health and safety procedure and equipment of forestry		Lack of training and education of workers and local population	X	X	X	Birth control training, fire prevention and control training, waste disposal training, operation guidelines, best energy diet content for employees and contractors workers, supervision of contractors,

	workers (include emergency training)				hospital fee paid by company, collaboration with NGOs working on social issues and post-war areas, infirmary and nurse for workers, aid kits, filtered drinking water and insurance for health	
		Subcontractors with poor employment management system	X	X	X	Contract specifying labour standard, health and safety standards, provision of field equipment by plantation companies
	Amounts of investments from the local population in the forest sector	Local population traditionally not involved with forestry activities do not properly understand risks such fire, damage of cattle to young stands, etc.	X	X		Free seedlings and plantation management support available for local communities, products produced by local smallholders are sold to the company
	Social impact assessment	To avoid missing key social negative and positive impacts		X		Dedicated committee to monitor social impacts
	Existence of the right to education for the local and/or indigenous population	Non educated people can hardly been employed in the planted forests and represent population		X	X	Contribution or creation to local funds for education, pro-poor, disabilities, environmental education center, etc.
	Strategy to protect the lives and properties of local inhabitants from fire in plantations	Risk for local communities and forest workers living inside plantation area			X	Negotiation mechanism, fire community alarm system integrated with local authorities, fire sensitization programme, technical assistance to local population in establishing fire breaks and controlled burning
Environment	Fuel, oil, toxic substances and waste are properly stored disposed	Toxicity for workers and high costs if not properly managed	X	X		Demonstration and training activities on field
	Careful selection of sites, species and genotype adapted to local conditions	Species are often depending on business plan run by investors with poor flexibility, lack of adaptive management and short period for testing species.	X	X		Testing of multiple species (included native) both with seedling and clones, maintaining of large trees during land clearance, permanent sample plots
	Diversity in composition (size, spatial distribution, number of species and genetic, ages, structures) is preferred	Lack of studies and proper testing of species in planted area				
	• Long-term consequences of	Water pollution and increase in the management costs		X		Increase the mechanical weeding (e.g.. ploughing, ripping and slashing) and lower the use of chemicals,

	<p>fertilization, pest control and disease management are assessed in forest plantations</p> <ul style="list-style-type: none"> • The use of biological control agents is strictly regulated 					only working the soil around the plant (1 meter circle)
	<ul style="list-style-type: none"> • Sustainability policies and target for forest risk commodities exists • Environmental impact assessment (including emergency, hazards and risks) 	To avoid missing key environmental negative and positive impacts		X		Use of internal policies (e.g.: Mission Statement, Waste Management Procedures, Nature Conservation Policy, Environmental Impact Assessment, Land Use Map and Plantation Development Plan), use of solar panel in new buildings, collection of rainwater through water tanks
	Soil protection regulations and measures against erosion & compaction are implemented (e.g. ploughing along land contour with a 10% - 5° gradient)	Loss of fertility	X		X	Permanent grass layer maintained after 3rd year, planting along slope grades
	<ul style="list-style-type: none"> • The natural water cycle is not disturbed or is restored (include riparian buffer zones along water bodies) • Primary forests and wetlands are conserved • High conservation Value Forests 	Buffer zones and conservation areas are often encroached	X	X	X	Identification an mapping of buffer zones and temporary and permanent wetlands, management of buffer zone in collaboration with environmental NGOs, native species reforestation inside buffer and conservation areas, use of drones for monitoring, monitoring tracks and marking of catted stumps
Climate change ecosystem services	Climate change is affecting the ability of the organization to produce, source or supply commodities that are at risk	Increased impact of fire and typhoons	X	X	X	Diversification of stand structure with multiyear stands, improvement of seedlings, change of species, use of seedlings instead of cuttings, mix of species and hybrids, planned thinnings, avoid slashing and fire to control understory vegetation, irrigation to rescue the young plants thanks to water reservoirs, water in slope terrain, grazing inside

	An organization policy recognizing the role of forests in climate change mitigation exists	Reputational risks and potential missing of forest products and services income	X	X		plantation to reduce fire risks, Climate change policy, carbon benefits are calculated for clients
Supply chain and traceability	<ul style="list-style-type: none"> • Supplier respecting labour standards • Suppliers aware of environmental requirements • Action to increase the uptake of sustainable produced materials up and down the organization value (include price premium) 	Reputational risks, loss of efficiency of subcontractors	X	X	X	Contractor's agreements on minimum quality standards on chemicals, food, labour issues, human rights, ILO regulation and workers' health. Extension of contracts for contractors from 1 to 2 years. Provision of tends for contractors. Loans to contractors

Table 4.12 – Major impact of FSC certification on 12 investments in planted forests.

SECTION	SUBSECTION	FSC IMPACTS
Legal and institutional framework	Legislation	Requires full list and monitoring of applicable laws including ILO standards
	Property	The international recognition and visibility consolidates concession title in countries with high political risks and poor law enforcement
Forest management	Forest management planning	<ul style="list-style-type: none"> • Improves the monitoring of forest management planning instruments such as forest management plan, maps, etc. • Increases the frequency of external and internal monitoring • Increases the international knowledge gathering through meetings with foreign technical and institutional experts
	Health and vitality of forest ecosystem	<ul style="list-style-type: none"> • Improves the monitoring of instruments to prevent risks of pest, fire and extreme climate events • Secures seedling production suggesting seed research center
	Finance	<ul style="list-style-type: none"> • Price premium 20-30% • Security of buyers • Access to international funds • Improvement of documentation and resource planning
Governance, disclosure & transparency	Disclosure and reporting	Increases disclosure and reporting thanks to public available summary of certification audits and forest management plan and the provision of a platform for debate
	Stakeholders	Provision of a platform for debate
Community and Employees	Workers	Improve monitoring of health and safety of subcontractors
	Local communities and indigenous	<ul style="list-style-type: none"> • Provides HCVF framework • Helps with negotiations for resources management
Environment	Chemicals	<ul style="list-style-type: none"> • Improves monitoring of high hazardous pesticides list • Push for the creation of a central waste management center • Requires the identification of a responsible person
	Plantation design and natural forests	<ul style="list-style-type: none"> • Investors requiring FSC certification before project start reduce the possibility of planted forests replacing natural forests • Requires minimum protection areas and a clear framework for the improvement of natural forests • Has lead to the planting of native species.
	Environmental impacts	<ul style="list-style-type: none"> • Requires communication mechanisms with local community affecting conservation areas and buffer zones • It requires Standard Operation Procedures for conservation areas and buffer zones • Improves road construction and maintenance assessment framework • Improves harvesting requirements • Requires species diversification • Leads to stand diversification
	HCVF	Provides HCVF framework
Climate change ecosystem services	Ecosystem services	<ul style="list-style-type: none"> • Requires monitoring • Require absence of fire in land management, hence increase understory vegetation

Source: own elaboration

5 CONCLUSIONS

The present study had two objectives: first to set a framework for the evaluation of the Environmental, Social and Governance (ESG) performance of investments in planted forests, second to identify relations between the use of SRI tools and the financial performance of investments in planted forests.

5.1 What are key characteristics of investments in planted forests?

Investments in planted forests are constantly growing totalling today about USD 70-80 billion of assets under management (FAO, 2012). While traditionally concentrated in North America, investments in planted forests are quickly moving to emerging markets attracted by favourable financial performances. Both institutional and retail investors are involved in investments in planted forest, thanks also to the positive investment portfolio effect played by woodland 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 Investments (SRI) strategies to account for ESG issues in their investment process (EUROSIF, 2014). As of today the most common SRI strategies applied to investments in planted forests are:

- Sustainability Themes strategies (e.g.: forest funds);
- ESG Integration (e.g.: use of FSC certification as a framework for risk assessment);
- Impact investing (e.g.: microfinance and climate projects);
- Best-in-Class (e.g.: investing in the top ESG performing pulp and paper companies).

The study identify 339 organizations operating in SRI in planted forests in emerging markets. Three major groups of SRI stakeholders have been identified: market players (e.g.: investment companies), governments and civil society (e.g.: NGOs) and SRI infrastructures (e.g.: SRI rating).

5.2 Which Sustainable Responsible Investment tools are normally 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). The majority of the SRI tools have a broad sectoral or a forest sector approach with only few tools specific for planted forests. Business companies manage up to 60% of the SRI tools, despite NGOs play a relevant role in the development of management standards.

Investors are using more than 30 SRI tools (e.g.: bank investment policies, investment rating and investment standards) but these are characterized by low level of control such as signature and/or participation or at the most a conformity

declaration. On the contrary plantation companies are using less instruments but with top level of control such conformity assessment and certification.

5.3 Which SRI tools have the best ESG performance?

The analysis of the 50 SRI tools resulted in the development of a ESG Reference Document for investments in planted forests. A total number of 155 issues have been developed and grouped into 22 subsections and 7 sections. The sections “Legal and Institutional framework” and “Environment” are the most represented. The use of “Third party certification schemes” is the most frequent issue and is found in 37 SRI tools out of the 50 analysed. “Respect of laws”, “Illegal logging” and “High Conservation Value Forest” (HCVF) are the more frequently represented issues.

The most controlled issues are: “Respect of laws”, “Environmental impact assessment”, “Third party certification”, “Tenure rights”, “Forest damages”, “Communication between stakeholders” and “Climate change policy”. On the contrary aspects such as “Minimum percentage of protected areas”, “Poverty reduction” and “Prevention of encroachment” are not only the less frequent issues but also the less controlled issues by SRI tools.

The Gold Standard (SM8) and the Forest Stewardship Council (SM3) are the SRI tools with the highest performance among the 50 SRI tools analysed. Other high performance SRI tools are the WWF Responsible Investment Guide, Reprisk, Fairforest, Certified B Corporation, ABN AMRO Forest & Plantation Policy and the FTSE4Good Index Series.

5.4 What are the impacts of SRI tools on risks in planted forests?

The ESG Risk Assessment based on 12 case studies evenly distributed in Uganda, Cambodia and Vietnam, shows that most of the SRI tools are focusing on issues that on-the-ground are not the major risk sources. This is the case of “Third party certification” and “High Conservation Value Forests” (HCVFs). Few exemptions where SRI tools are properly identifying the major risks are “Tenure rights”, “Health and safety of workers” and “Social impact assessment”. Forest damages (e.g.: fire, wind, etc.), climate change impacts, long term financial sustainability, poverty reduction and encroachment are ranked as the most dangerous sources of risk across the 12 case studies. The ESG Risk Assessment allows to identify 25 issues out of 155 that can be used in the comparison of investments.

SRI tools are positively influencing the risk mitigation, accounting for a percentage of risk mitigation that ranges from 34.31 till 60.63%. All the case studies using SRI tools were able to address the majority of the risks.

5.5 Which are the SRI tools that maximize financial and socio-economic benefits?

The most frequent SRI tool found across the 12 case studies is the FSC Forest Management/Chain of Custody certification. FSC certification was often reported by projects’ stakeholders as a key instrument to mitigate the risk of investments in planted forests. In particular, FSC certification was reported as:

- Generating new instruments/measures of risk mitigation. In fact, due to FSC certification plantation companies established a clear law and ILO standard database, avoid conversion of natural forests, gain price premium and

security of buyers, establish conservation areas and diversify the use of species;

- Improving existent instruments/measure of risk mitigation such as forest management instruments (e.g. plan, maps and chemicals), seedlings production, problem solving capacity, health and safety, conservation area management instruments and access to loans;
- Improving communication, disclosure and trust among stakeholders reducing political risks, supporting negotiations and providing access to documentation as well as a platform for debate among stakeholders.

5.6 Recommendations and further research

5.6.1 For market players

- SRI tools used by investors and investment companies are on average characterized by very low levels of control. Management standards, investment rating and investment standards using third party independent accredited certification must be preferred;
- The best performing SRI tools such as The Gold Standard, FSC Forest management/Chain of Custody certification, ABN AMRO Forest & Plantation Policy, WWF Responsible Investment Guide, Reprisk and Global Reporting Initiative (GRI) should be taken into consideration when is SRI strategies as Sustainability Themed, ESG integration and Best-in-Class.

5.6.2 For SRI infrastructures

- Few SRI instruments are specifically targeting planted forests, as a consequence emphasis might occurs on issues typical of natural forest management (e.g.: High Conservation Value Forests and Illegal logging). Planted forests specific SRI tools or dedicated emphasis on planted forests should be preferred;
- Climate change impacts, long term financial sustainability, poverty reduction and encroachment are issues marginalized on SRI tools. These issues proved to be important risks for investment in planted forests, hence deserve more specific attention and solutions

5.6.3 Further research needed

This first explorative attempt to create a framework for the evaluation of the ESG performance of investments in planted forests could be improved with more replications of case studies with the scope to reduce the number of issues and further define a set of comparable priority issues. In addition, an ESG Risk Assessment specific for smallholders should be developed.

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7 APPENDICES

7.1 SRI stakeholders and infrastructures database

ORGANIZATION	TYPE
ASI	ACCREDITATION BODIES
GISR - Global Initiative for Sustainability Ratings	ACCREDITATION BODIES
ISO/CASCO	ACCREDITATION BODIES
NepCON	CERTIFICATION BODIES
Rainforest Alliance	CERTIFICATION BODIES
Acorn Capital Limited	INVESTMENT COMPANIES
Agroempresa Forestal - AF	INVESTMENT COMPANIES
Amundi	INVESTMENT COMPANIES
AQUILA CAPITAL	INVESTMENT COMPANIES
Asia Plantation Capital	INVESTMENT COMPANIES
AXA Investment Managers	INVESTMENT COMPANIES
Bauminvest	INVESTMENT COMPANIES
BlueOrchard	INVESTMENT COMPANIES
BNP Paribas Asset Management	INVESTMENT COMPANIES
Brookfield Asset Management - Brookfield Brazil Timber Fund (BBTF)	INVESTMENT COMPANIES
BRZ INVESTIMENTOS	INVESTMENT COMPANIES
BTG Pactual	INVESTMENT COMPANIES
CA Cheuvreux	INVESTMENT COMPANIES
Calvert	INVESTMENT COMPANIES
Cambium Global Timberland Limited (Cogent Partners)	INVESTMENT COMPANIES
CM-CIC Asset Management	INVESTMENT COMPANIES
COMACO FORESTAL	INVESTMENT COMPANIES
DB Advisors / DWS Investments	INVESTMENT COMPANIES
Dexia Asset Management	INVESTMENT COMPANIES
EBG Capital	INVESTMENT COMPANIES
Ethical Forestry	INVESTMENT COMPANIES
ETICA SGR	INVESTMENT COMPANIES
Face the Future	INVESTMENT COMPANIES
FestForest	INVESTMENT COMPANIES
Finnish Fund for Industrial Cooperation Ltd (With Green Resources)	INVESTMENT COMPANIES
Forest Finance Service GmbH	INVESTMENT COMPANIES
Forest Investment Associates	INVESTMENT COMPANIES
ForestFinance Service GmbH	INVESTMENT COMPANIES
Four Winds Capital Management	INVESTMENT COMPANIES
GEA	INVESTMENT COMPANIES
Generali Investments Europe	INVESTMENT COMPANIES
Generation Investment Management LLP	INVESTMENT COMPANIES
Global Forest Partners	INVESTMENT COMPANIES
Global-Woods international AG	INVESTMENT COMPANIES
Green Resources - Busoga Forestry Company Ltd	INVESTMENT COMPANIES
GreenWood Management	INVESTMENT COMPANIES
GreenWood resources	INVESTMENT COMPANIES
Groupama Asset Management	INVESTMENT COMPANIES
Henderson Global Investors	INVESTMENT COMPANIES
Hermes Equity Ownership Services Ltd.	INVESTMENT COMPANIES
International Woodland Company IWC	INVESTMENT COMPANIES
IWC	INVESTMENT COMPANIES
LGT Capital Management	INVESTMENT COMPANIES
MACIF Gestion	INVESTMENT COMPANIES
Natixis Asset Management	INVESTMENT COMPANIES
New Forests	INVESTMENT COMPANIES
OpenForests	INVESTMENT COMPANIES
Pictet Asset Management S.A.	INVESTMENT COMPANIES
Pioneer Investments	INVESTMENT COMPANIES
Planting Empowermen	INVESTMENT COMPANIES
R&A Investment Forestry	INVESTMENT COMPANIES

ORGANIZATION	TYPE
Robeco	INVESTMENT COMPANIES
SAM Sustainable Asset Management	INVESTMENT COMPANIES
Schroders	INVESTMENT COMPANIES
SICIREC - ArBolivia	INVESTMENT COMPANIES
SNS Asset Management	INVESTMENT COMPANIES
Sparinvest	INVESTMENT COMPANIES
Standard Life Investments	INVESTMENT COMPANIES
Sun Wide Invest	INVESTMENT COMPANIES
The Forest Company	INVESTMENT COMPANIES
The Forestland Group, LLC	INVESTMENT COMPANIES
The New Forests Company	INVESTMENT COMPANIES
The Sustainable Group	INVESTMENT COMPANIES
Threadneedle Asset Management	INVESTMENT COMPANIES
Timberland Investment Resources	INVESTMENT COMPANIES
Union Investment	INVESTMENT COMPANIES
ABN AMRO	INVESTORS
AG2R La Mondiale	INVESTORS
Andra AP-fonden	INVESTORS
Aviva Investors	INVESTORS
BANK OF AMERICA	INVESTORS
Bank Sarasin	INVESTORS
Caisse des Dépôts	INVESTORS
CITIGROUP	INVESTORS
CO-OPERATIVE BANK	INVESTORS
Dasos Capital Oy	INVESTORS
DASOS TIMBERLAND FUND I (by Dasos Capital) - Hijauan Asia Sdn	INVESTORS
Edmond de Rothschild Securities (Moriga FUND)	INVESTORS
European Investment Bank	INVESTORS
F.I.T. Timber Growth Fund Ltd	INVESTORS
FMO Dutch development bank (with New Forests)	INVESTORS
Global Fund House	INVESTORS
GOLDMAN SACHS	INVESTORS
HSBC	INVESTORS
ING	INVESTORS
INOKS Capital	INVESTORS
iShares Global Timber & Forestry ETF	INVESTORS
Meeschaert Gestion Privée	INVESTORS
Moringa SICAR (Moriga FUND)	INVESTORS
Nordea Investment Funds S.A.	INVESTORS
Oikocredit	INVESTORS
Overseas Private Investment Corporation	INVESTORS
Phaunos Timber Fund Limited	INVESTORS
Pictet & Cie	INVESTORS
UBS Timber Investors	INVESTORS
CIFOR	IOS
FAO	IOS
GIZ	IOS
GIZ MNR (management of natural resources) Sector Office	IOS
ICRAF Peru	IOS
IFC	IOS
IIED	IOS
ITTO	IOS
IUCN	IOS
PROFOR	IOS
Proparco	IOS
RECOFTC - The Center for People and Forest	IOS
SNV	IOS
Sustainable Business Institute	IOS
TBI, Wageningen, The Netherland	IOS
TROPEBONS INTERNATIONAL	IOS
Uganda Forest Governance and land Group (evicted people)	IOS
Uganda Wildlife Authority (UWA)	IOS

ORGANIZATION	TYPE
UNEP Financial Initiative	IOS
Wildlife Conservation Society	IOS
WORLD BANK	IOS
BIRD LIFE INTERNATIONAL	NGOs
CORENARM - Hue Agriculture and forestry University	NGOs
ECOTRUST	NGOs
Friends of Hue Foundation	NGOs
Fundacion Victoria Jean Navajas	NGOs
Greenpeace International	NGOs
NAV/NCA actalliance (Norwegian Church Aid)	NGOs
New Generation Plantation	NGOs
Oxfam	NGOs
Sustainable Forest Management Institute (SFMI)	NGOs
Transparency International Italia	NGOs
Tropenbos International vietnam	NGOs
WildLife Alliance	NGOs
WWF	NGOs
WWF International,	NGOs
ABRAF – Associação Brasileira de Produtores de Florestas Plantadas	PLANTATION ASSOCIATIONS
AFOA Asociacion Forestal Argentina	PLANTATION ASSOCIATIONS
IBA	PLANTATION ASSOCIATIONS
UTGA (Uganda Timber Growers Association)	PLANTATION ASSOCIATIONS
Africa Plantations for Sustainable Development (APSD)	PLANTATION COMPANIES
AMATA	PLANTATION COMPANIES
BENHAIFOCO	PLANTATION COMPANIES
Bosques Amazonico BAM	PLANTATION COMPANIES
Bosques del Plata (CMPC)	PLANTATION COMPANIES
Chambok Community Forest	PLANTATION COMPANIES
CMPC	PLANTATION COMPANIES
Core Woods	PLANTATION COMPANIES
Dak To Planco (Dak To Forest State-owned Company)	PLANTATION COMPANIES
Ethical Money (The Cochabamba Project Ltd)	PLANTATION COMPANIES
Fibria	PLANTATION COMPANIES
FLORESTECA	PLANTATION COMPANIES
Forest Carbon Group	PLANTATION COMPANIES
Forest First	PLANTATION COMPANIES
Forestal Las Marías SA	PLANTATION COMPANIES
Forexco Company	PLANTATION COMPANIES
Form Ghana	PLANTATION COMPANIES
Former Miro	PLANTATION COMPANIES
Grandis Timber	PLANTATION COMPANIES
GreenWood Trading AG	PLANTATION COMPANIES
Guavirá Industrial e Agroflorestal Ltda	PLANTATION COMPANIES
INTERFOREST	PLANTATION COMPANIES
Las Marias	PLANTATION COMPANIES
Miro Forestry	PLANTATION COMPANIES
Owner of Teak North Uganda (friend of Steve Nsita)	PLANTATION COMPANIES
Pomera Maderas Garruchos S.A.	PLANTATION COMPANIES
Quy Nhon Plantation Forest Company of Vietnam Ltd (QPFL)	PLANTATION COMPANIES
Sharewood	PLANTATION COMPANIES
Sopheak Nika Investment Group Company (former Chup)	PLANTATION COMPANIES
Suzano	PLANTATION COMPANIES
Truong Thanh Plantation Company	PLANTATION COMPANIES
Viet Nam Paper Corporation (VINAPACO)	PLANTATION COMPANIES
VIET NAM RUBBER GROUP	PLANTATION COMPANIES
Academy of China	RESEARCH ORGANIZATIONS
Australian National University	RESEARCH ORGANIZATIONS
Cambodia Development Resource Institute (CDRI)	RESEARCH ORGANIZATIONS
CATIE	RESEARCH ORGANIZATIONS
FAUBA	RESEARCH ORGANIZATIONS
GDRC	RESEARCH ORGANIZATIONS
Global Canopy Programme	RESEARCH ORGANIZATIONS

ORGANIZATION	TYPE
HARWARD CSR SCHOOL	RESEARCH ORGANIZATIONS
INCAE Business School	RESEARCH ORGANIZATIONS
Makere University	RESEARCH ORGANIZATIONS
NC STATE UNI - Dept. Forestry & env Res	RESEARCH ORGANIZATIONS
oekom research	RESEARCH ORGANIZATIONS
Rubber Research Center	RESEARCH ORGANIZATIONS
The Initiative for Responsible Investment at the Hauser Institute for Civil Society	RESEARCH ORGANIZATIONS
University Buenos Aires	RESEARCH ORGANIZATIONS
UNIVERSITY DRESDEN	RESEARCH ORGANIZATIONS
University Helsinki	RESEARCH ORGANIZATIONS
University of Makerere	RESEARCH ORGANIZATIONS
University Pennsylvania State UNI	RESEARCH ORGANIZATIONS
Univiversity of Georgia - Centre For Forest Business	RESEARCH ORGANIZATIONS
World Business Council For Sustainable Developmen	RESEARCH ORGANIZATIONS
ALLIANCE OF TRUSTWORTHY BUSINESS EXPERTS	SRI ASSOCIATIONS & FORUM
ARISE	SRI ASSOCIATIONS & FORUM
ASBC - American Sustainable Business Council	SRI ASSOCIATIONS & FORUM
ASPEN	SRI ASSOCIATIONS & FORUM
ASriA - Association for Sustainable & Responsible Investment in Asia	SRI ASSOCIATIONS & FORUM
BANK TRACK	SRI ASSOCIATIONS & FORUM
Belsif*, Belgium	SRI ASSOCIATIONS & FORUM
BVCA	SRI ASSOCIATIONS & FORUM
CERES	SRI ASSOCIATIONS & FORUM
Dansif, Denmark	SRI ASSOCIATIONS & FORUM
Dutch Association of Investors for Sustainable Development (VBDO)	SRI ASSOCIATIONS & FORUM
ETHICAL INVESTMENT ASSOCIATION	SRI ASSOCIATIONS & FORUM
FAST	SRI ASSOCIATIONS & FORUM
FAST INTERNATIONAL	SRI ASSOCIATIONS & FORUM
FAST SCGP	SRI ASSOCIATIONS & FORUM
FEBEA	SRI ASSOCIATIONS & FORUM
Finsif, Finland	SRI ASSOCIATIONS & FORUM
Forum Nachhaltige Geldanlagen (FNG) e.V., Austria, Germany and Switzerland	SRI ASSOCIATIONS & FORUM
Forum per la Finanza Sostenibile	SRI ASSOCIATIONS & FORUM
Forum pour l'Investissement Responsable* (FIR), France	SRI ASSOCIATIONS & FORUM
GLOBAL IMPACT INVESTING NETWORK	SRI ASSOCIATIONS & FORUM
GSIA Global and Sustainable Investment Alliance	SRI ASSOCIATIONS & FORUM
IGCC - Investor Group on Climate Change Australia/New Zealand	SRI ASSOCIATIONS & FORUM
IIGCC The Institutional Investors Group on Climate Change	SRI ASSOCIATIONS & FORUM
INCR Investor Network on Climate Risk	SRI ASSOCIATIONS & FORUM
ISEAL	SRI ASSOCIATIONS & FORUM
Norsif, Norway	SRI ASSOCIATIONS & FORUM
Publish What You Pay	SRI ASSOCIATIONS & FORUM
Spainsif*, Spain	SRI ASSOCIATIONS & FORUM
Sustainable Finance Geneva	SRI ASSOCIATIONS & FORUM
Sustainable Stock Exchanges (SSE) initiative	SRI ASSOCIATIONS & FORUM
Swesif*, Sweden	SRI ASSOCIATIONS & FORUM
UK Sustainable Investment and Finance Association	SRI ASSOCIATIONS & FORUM
UPSIDES	SRI ASSOCIATIONS & FORUM
Vereniging van Beleggers voor Duurzame Ontwikkeling* (VBDO), the Netherlands	SRI ASSOCIATIONS & FORUM
Ace&Company	SRI CONSULTANTS AND ADVISORS
AFC Consorcio Manajo del fuego	SRI CONSULTANTS AND ADVISORS
Agroservice	SRI CONSULTANTS AND ADVISORS
Arbonaut	SRI CONSULTANTS AND ADVISORS
Avanzi	SRI CONSULTANTS AND ADVISORS
Barchester Green	SRI CONSULTANTS AND ADVISORS
Beetle Capital	SRI CONSULTANTS AND ADVISORS
BLAB	SRI CONSULTANTS AND ADVISORS
Bloomberg LP	SRI CONSULTANTS AND ADVISORS

ORGANIZATION	TYPE
CIS MADERA	SRI CONSULTANTS AND ADVISORS
Climate Focus	SRI CONSULTANTS AND ADVISORS
CSSP- Center for Social and Sustainable Products	SRI CONSULTANTS AND ADVISORS
Department of Forest	SRI CONSULTANTS AND ADVISORS
Duo Partners	SRI CONSULTANTS AND ADVISORS
ECPI	SRI CONSULTANTS AND ADVISORS
EFI	SRI CONSULTANTS AND ADVISORS
EMT Forest Ltd	SRI CONSULTANTS AND ADVISORS
Ethical Investment Advice	SRI CONSULTANTS AND ADVISORS
Ethix SRI Advisors AB	SRI CONSULTANTS AND ADVISORS
Fédération des Experts Comptables Européens (FEE)	SRI CONSULTANTS AND ADVISORS
Forest Carbon Ltd	SRI CONSULTANTS AND ADVISORS
Forest Finance Risk NETWORK	SRI CONSULTANTS AND ADVISORS
Forest Research Group	SRI CONSULTANTS AND ADVISORS
Forestry Consultant - Ex NFA - Havila Co	SRI CONSULTANTS AND ADVISORS
Forestry Consultant - Ex NFA - Havila Co.	SRI CONSULTANTS AND ADVISORS
Forética	SRI CONSULTANTS AND ADVISORS
former SPGS	SRI CONSULTANTS AND ADVISORS
FSC Auditors	SRI CONSULTANTS AND ADVISORS
FSC Auditors Prof. at Makerere	SRI CONSULTANTS AND ADVISORS
Fundación Ecología y Desarrollo (ECODES)	SRI CONSULTANTS AND ADVISORS
GSW Agroforestry	SRI CONSULTANTS AND ADVISORS
Hancock Timber Resource Group (HTRG)	SRI CONSULTANTS AND ADVISORS
Havila	SRI CONSULTANTS AND ADVISORS
INDUFOR	SRI CONSULTANTS AND ADVISORS
INEVA	SRI CONSULTANTS AND ADVISORS
Iniciativa Agronegocios	SRI CONSULTANTS AND ADVISORS
International development	SRI CONSULTANTS AND ADVISORS
KLD (Kinder Lydenberg Domini)	SRI CONSULTANTS AND ADVISORS
KPMG	SRI CONSULTANTS AND ADVISORS
Kwabakya Forestry Enterprises Limited	SRI CONSULTANTS AND ADVISORS
Kyenjojo biofuel local Grant	SRI CONSULTANTS AND ADVISORS
Logan Trading	SRI CONSULTANTS AND ADVISORS
Manifest Information Services	SRI CONSULTANTS AND ADVISORS
Mercer	SRI CONSULTANTS AND ADVISORS
MSCI	SRI CONSULTANTS AND ADVISORS
N.Forri	SRI CONSULTANTS AND ADVISORS
ONF International (Moriga FUND)	SRI CONSULTANTS AND ADVISORS
POYRY	SRI CONSULTANTS AND ADVISORS
PricewaterhouseCoopers LLP	SRI CONSULTANTS AND ADVISORS
Proexport Colombia	SRI CONSULTANTS AND ADVISORS
RubelKiche	SRI CONSULTANTS AND ADVISORS
Seventy Three Pte.Ltd	SRI CONSULTANTS AND ADVISORS
SFBI	SRI CONSULTANTS AND ADVISORS
Silvapar	SRI CONSULTANTS AND ADVISORS
SIMOSOL OY	SRI CONSULTANTS AND ADVISORS
SLB BRAZIL ECONOMY FUND	SRI CONSULTANTS AND ADVISORS
StarCrop	SRI CONSULTANTS AND ADVISORS
STCP Enjeneria de Proyectos LTDA	SRI CONSULTANTS AND ADVISORS
SUSTAINALYTICS	SRI CONSULTANTS AND ADVISORS
TALGRA	SRI CONSULTANTS AND ADVISORS
The Forest Trust	SRI CONSULTANTS AND ADVISORS
The Moringa Partnership (Moriga FUND)	SRI CONSULTANTS AND ADVISORS
Topan - ethical Investments	SRI CONSULTANTS AND ADVISORS
Tree Seed Center - Small Plt Owners	SRI CONSULTANTS AND ADVISORS
Tree Talk	SRI CONSULTANTS AND ADVISORS
Trucost	SRI CONSULTANTS AND ADVISORS
Uganda Carbon Bureau	SRI CONSULTANTS AND ADVISORS
Unique	SRI CONSULTANTS AND ADVISORS
UPM Forestal Oriental (Uruguay)	SRI CONSULTANTS AND ADVISORS
Vigeo	SRI CONSULTANTS AND ADVISORS
VINIS	SRI CONSULTANTS AND ADVISORS
WaKa Forest Investment Services	SRI CONSULTANTS AND ADVISORS

ORGANIZATION	TYPE
ASPEN (ANDE)	SRI DIRECTORIES
FINANZA ETICA	SRI DIRECTORIES
IMPACTBASE	SRI DIRECTORIES
OPEN FOREST MARKETPLACE	SRI DIRECTORIES
SRI studies	SRI DIRECTORIES
The GLOBAL MECHANISM	SRI DIRECTORIES
YourEthicalMoney	SRI DIRECTORIES
CARBON DISCLOSURE	SRI RATING
CSR HUB	SRI RATING
EIRIS	SRI RATING
ETHIBEL	SRI RATING
FTSE Group	SRI RATING
GIIRS	SRI RATING
GMI RATINGS	SRI RATING
IMPACTASSET	SRI RATING
Inrate AG	SRI RATING
REPRISK	SRI RATING
Standard & Poor's Indices	SRI RATING
THOMPSONREUTERS	SRI RATING
AMERICAN CARBON REGISTRY	SRI STANDARD SETTERS
ARISTA	SRI STANDARD SETTERS
CCB	SRI STANDARD SETTERS
CDM	SRI STANDARD SETTERS
Fair Trade Standard	SRI STANDARD SETTERS
FSC IC	SRI STANDARD SETTERS
GRI	SRI STANDARD SETTERS
IASB	SRI STANDARD SETTERS
IFRS - international financial reporting standards	SRI STANDARD SETTERS
IRIS	SRI STANDARD SETTERS
PEFC	SRI STANDARD SETTERS
Plan Vivo	SRI STANDARD SETTERS
SA 8000	SRI STANDARD SETTERS
SASB	SRI STANDARD SETTERS
SD-KPI StanDarD	SRI STANDARD SETTERS
The Gold Standard Foundation	SRI STANDARD SETTERS
Uganda Forestry Working Group (UFWG)	SRI STANDARD SETTERS
VCS	SRI STANDARD SETTERS

7.2 SRI tools database

TOOL	CODE	TYPE	SPECIFICITY	GOVERNANCE	LEVEL OF CONTROL	GEOGRAPHIC ORIGIN	GEOGRAPHIC APPLICATION	FIRST PUBLICATION	COORDINATION	MARKET SHARE (as of 2013 reports or November 2014 website update)
ABN AMRO Forest & Plantation Policy	IP1	BANK INVESTMENT POLICY	FOREST	BUSINESS	2	Europe	International	2013	1	NA
AMERICAN CARBON REGISTRY	SM1	MANAGEMENT STANDARD	FOREST	BUSINESS	4	North America	International	2008	0	USD 24 million
ASSET4 ESG	IR4	INVESTMENT RATING	BROAD		2	North America	International	2010	6	3500 companies
AUSTRALIAN ILLEGAL LOGGING PROHIBITION ACT	LB1	LEGALITY BENCHMARK	FOREST	GOVERNMENT	1	Oceania	Oceania	2013	0	NA
BANK OF AMERICA	IP2	BANK INVESTMENT POLICY	BROAD	BUSINESS	1	North America	International	2004	1	NA
CARBON DISCLOSURE PROJECT (include FOREST DISCLOSURE)	RP1	REPORTING STANDARD	BROAD	BUSINESS	2	Europe	International	2003	1	162 companies with market capitalization of USD 3,24 trillion
CCB	SM2	MANAGEMENT STANDARD	FOREST	NGO	4	North America	International	2005	0	0,18 million ha
CEPI - Legal Logging Code of Conduct for the Paper Industry	CC1	CODE OF CONDUCT	FOREST	BUSINESS	1	Europe	Europe	2005	1	636 companies, 75 500 million €
Certified B Corporation	SI1	INVESTMENT STANDARD	BROAD	BUSINESS	3	North America	International	2006	5	900 certified B organizations
CITIGROUP ESRM (Env & Soc Risk Management Policy)	IP3	BANK INVESTMENT POLICY	BROAD	BUSINESS	1	North America	International	2006	4	NA
CLEAN DEVELOPMENT MECHANISM	SM10	MANAGEMENT STANDARD	PLANTED FORESTS	GOVERNMENT	4	North America	International	2005	0	USD 90 million
CO-OPERATIVE BANK ETHICAL POLICY	IP9	BANK INVESTMENT POLICY	BROAD	BUSINESS	1	Europe	Europe	1992	1	NA
COLLEVECCHIO DECLARATION	CC3	CODE OF CONDUCT	BROAD	NGO	1	Europe	International	2003	1	40 members mostly NGOs and Research Organizations

TOOL	CODE	TYPE	SPECIFICITY	GOVERNANCE	LEVEL OF CONTROL	GEOGRAPHIC ORIGIN	GEOGRAPHIC APPLICATION	FIRST PUBLICATION	COORDINATION	MARKET SHARE (as of 2013 reports or November 2014 website update)
CSR HUB	IR7	INVESTMENT RATING	BROAD	BUSINESS	3	North America	International	2008	5	9143 companies
DOMINI GLOBAL INVESTMENT STANDARDS	SI8	INVESTMENT STANDARD	BROAD	BUSINESS	2	North America	International	1991	1	USD 1.4 billion AUM
ECOBANKING PROJECT	IG1	INVESTMENT GUIDELINES	BROAD	ACADEMIC	1	South America	International	2003	1	300 financial institutions
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
EQUITICS (include FORUM ETHIBEL)	IR10	INVESTMENT RATING	BROAD	BUSINESS	3	Europe	International	2003	1	NA
ETICA SGR	IR5	INVESTMENT RATING	BROAD	BUSINESS	1	Europe	International	2003	1	1 billion AUM
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
FAIR TRADE STANDARD FOR TIMBER FOR FOREST ENTERPRISES	SM11	MANAGEMENT STANDARD	FOREST	NGO	4	Europe	International	2010	1	pilot activities
FAIRFOREST	IR2	INVESTMENT RATING	FOREST	BUSINESS	2	Europe	International	2014	5	1 project
FSC Forest Management and Chain of Custody Standards	SM3	MANAGEMENT STANDARD	FOREST	NGO	4	South America	International	1993	1	16.4 million ha
FTSE4Good Index Series	I12	INVESTMENT INDEX	BROAD	BUSINESS	3	North America	International	2001	4	NA
GIIRS - Global Impact Investing Rating System	IR1	INVESTMENT RATING	BROAD	BUSINESS	2	North America	International	2009	1	900 companies certified B corporation
GLOBAL COMPACT	SI5	INVESTMENT STANDARD	BROAD	GOVERNMENT	1	North America	International	2000	1	8000 organizations in 145 countries

TOOL	CODE	TYPE	SPECIFICITY	GOVERNANCE	LEVEL OF CONTROL	GEOGRAPHIC ORIGIN	GEOGRAPHIC APPLICATION	FIRST PUBLICATION	COORDINATION	MARKET SHARE (as of 2013 reports or November 2014 website update)
Goldman Sachs - Environmental Policy Framework	IP4	BANK INVESTMENT POLICY	BROAD	BUSINESS	1	North America	International	2007	2	NA
GRI	RP2	REPORTING STANDARD	BROAD	GOVERNMENT	3	North America	International	2000	1	6730 organizations
HSBC	IP5	BANK INVESTMENT POLICY	BROAD	BUSINESS	1	Europe	International	2004	2	NA
IFC Performance Standards	SI7	INVESTMENT STANDARD	BROAD	GOVERNMENT	2	North America	International	1998	2	USD 6.3 billion AUM
IMPACTASSETS	IR3	INVESTMENT RATING	BROAD	BUSINESS	2	North America	International	2010	4	NA
ING ESR Policy	IP8	BANK INVESTMENT POLICY	BROAD	BUSINESS	1	Europe	International	2003	4	NA
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
ISO 14001	SM4	MANAGEMENT STANDARD	BROAD	BUSINESS	4	Europe	International	2004	0	NA
LACEY ACT	LB4	LEGALITY BENCHMARK	FOREST	GOVERNMENT	2	North America	North America	2012	0	NA
Pacto Intersectorial por la madera legal	CC2	CODE OF CONDUCT	FOREST	GOVERNMENT	1	South America	South America	2011	1	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
PWC Forest Finance toolkit	IG2	INVESTMENT GUIDELINES	FOREST	BUSINESS	1	Europe	International	2009	4	NA
REPRISK	IR8	INVESTMENT RATING	BROAD	BUSINESS	3	Europe	International	2006	6	NA
SA 8000	SM12	MANAGEMENT STANDARD	BROAD	NGO	4	North America	International	1997	0	3000 organizations
SD-KPI StanDarD 2010 -2014	RP3	REPORTING STANDARD	BROAD	BUSINESS	1	Europe	International	2010	1	NA
The Gold Standard	SM8	MANAGEMENT STANDARD	PLANTED FORESTS	BUSINESS	4	Europe	International	2013	1	USD 6,56 million

TOOL	CODE	TYPE	SPECIFICITY	GOVERNANCE	LEVEL OF CONTROL	GEOGRAPHIC ORIGIN	GEOGRAPHIC APPLICATION	FIRST PUBLICATION	COORDINATION	MARKET SHARE (as of 2013 reports or November 2014 website update)
TRIODOS Investment Strategy	IP6	BANK INVESTMENT POLICY	BROAD	BUSINESS	1	Europe	Europe	NA	2	NA
UN PRINCIPLE FOR RESPONSIBLE INVESTMENTS	SI6	INVESTMENT STANDARD	BROAD	GOVERNMENT	1	North America	International	2006	3	1314 financial institutions, 45 USD trillions AUM
VCS	SM9	MANAGEMENT STANDARD	FOREST	BUSINESS	4	North America	International	2005	0	USD 69,9 million
WB Forests Strategy and Operational Policy	IP7	BANK INVESTMENT POLICY	FOREST	GOVERNMENT	1	North America	International	2002	1	NA
WBCSD Sustainable Procurement of Wood and Paper-based Products Guide and Resource Kit	IG5	INVESTMENT GUIDELINES	FOREST	BUSINESS	1	Europe	International	2013	7	NA
WWF Responsible Investment Guide	IG4	INVESTMENT GUIDELINES	FOREST	NGO	1	North America	International	2003	7	15 organizations involved

7.3 SRI tools description

Numbers inside 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 non-profit U.S. carbon market standard and registry. As the first private voluntary greenhouse gas (GHG) registry in the U.S., ACR boasts over 15 years of operational experience in development of high quality carbon offset standards and protocols, carbon offset issuance and serialization and transparent on-line 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 an 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. Integrate ESG data in your 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	Bank of America maintains a range of environmental policies related to climate change, forests, energy, environmental lending and beyond. Our policies are available to provide transparency and clarity about our position on important environmental issues	1			
CARBON DISCLOSURE PROJECT (include FOREST DISCLOSURE)	In order to protect their investments, institutional investors must act to reduce this long-term strategic risk to their portfolios. Our 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 US\$ 87 trillion in assets – 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. A special project of CDP, the Climate Disclosure Standards Board (CDSB) is committed to the integration of climate change-related information into 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

TOOL	DESCRIPTION	INV	INC	PLC	PI
CCB	The 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 requests its member to adhere to the code for legal wood sourcing				1
Certified B Corporation	B Corporations are certified by the non-profit B Lab to meet rigorous standards of social and environmental performance, accountability, and transparency.		3		3
CITIGROUP ESRM (Env & Soc Risk Management Policy)	Citi adheres to internationally recognized environmental and social principles and practices, as well as our 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 one tonne of CO2. These CERs can be traded and sold, and used by industrialized countries to a 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 provide finance to those organisations making a positive community, social and environmental impact.	1			1
COLLEVECCHIO DECLARATION	BankTrack is a global network of non-governmental 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 Collevocchio declaration. The Declaration was the first civil society statement on the role of financial sector and sustainability, and was signed by over 100 civil society organizations.	1			
CSR HUB	CSRHub provides access to corporate social responsibility and sustainability ratings and information on 9,143+ 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	We are an investment firm specializing exclusively in socially responsible investing. We manage funds for individual and institutional investors who wish to integrate social and environmental standards into their investment decisions. These standards guide our investments in the stocks and the fixed-income securities in our funds. We apply these standards to all our investments, believing they help 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			
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	The 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			

TOOL	DESCRIPTION	INV	INC	PLC	PI
EQUITICS (include FORUM ETHIBEL)	The ASPI Eurozone (Advanced Sustainable Performance Indices) is the European index of reference of companies and investors wishing to commit themselves in favour of sustainable development and corporate social responsibility. Vigeo assesses and rates the performances of companies according the Equitics methodology based on 38 criteria, divided in to six key areas of corporate environmental, social and governance responsibility.	3			
ETICA SGR	ETICA Sgr is evaluating 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
FAIR TRADE STANDARD FOR TIMBER FOR FOREST ENTERPRISES	A standard of the fair trade 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. Together these diverse voices define best practices for forestry that addresses 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	The FTSE4Good Index Series measures since 2001 the performance of companies that meet globally recognised corporate responsibility standards.	3	3	3	3
GIIRS - Global Impact Investing Rating System	GIIRS (Global Impact Investing Rating System) 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 ten universally accepted principles in the areas of human rights, labour, environment and anti-corruption.	1	1	1	1
Goldman Sachs - Environmental Policy Framework	The Framework embodies our commitment to developing effective market-based solutions to address 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 organizations can use to report their economic, environmental, and social performance and impacts.	3	3	3	3

TOOL	DESCRIPTION	INV	INC	PLC	PI
HSBC	HSBC has had a forestry policy since 2004 and we review and update our policies regularly. HSBC commissioned two independent reviews on its Forestry Policy in 2013. The first review was by ProForest into how our policy standards compared to good practice and whether they could be improved. We published the review on our 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, which 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. iii) The Access to Information Policy, which articulates IFC's commitment to transparency. The Performance Standards, which define clients' responsibilities for managing their environmental and social risks. 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, iii) The Access to Information Policy, which articulates IFC's commitment to transparency.	2	2	2	2
IMPACTASSETS	An Annual Showcase of Impact Investment Fund Managers. ImpactAssets is a non-profit 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 our 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 non-profit, non-governmental 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	
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 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

TOOL	DESCRIPTION	INV	INC	PLC	PI
SA 8000	The SA8000 standard is the central document of our work at 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 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 recognised internationally as the benchmark for quality and rigour in both the compliance and voluntary carbon markets.			4	
TRIODOS Investment Strategy	Triodos Bank is one of the world's leading sustainable banks. Our mission is to make money work for positive social, environmental and cultural change.	1			
UN PRINCIPLE 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 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 from 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 Organisation, United Nations, Profundo, ProForest, IUCN-The World Conservation Union, and the Global Reporting Initiative	1	1		

7.4 Reference standards with complete list of sections, subsections and issues

ID	SECTIONS	SUBSECTIONS	ISSUES
1	Legal and institutional framework	Legislation	Respect of local and national applicable laws and regulations
2	Legal and institutional framework	Legislation	Compatibility with international or national agreements signed by the hosting country
3	Legal and institutional framework	Legislation	Conformity to labour and fee legislation (e.g.: ILO standards)
4	Legal and institutional framework	Illegal logging	Outside concession area
5	Legal and institutional framework	Illegal logging	Protected areas
6	Legal and institutional framework	Illegal logging	Without permits
7	Legal and institutional framework	Illegal logging	Lack of respect of billing regulations
8	Legal and institutional framework	Illegal logging	Management plans
9	Legal and institutional framework	Illegal logging	Bribes for concessions
10	Legal and institutional framework	Illegal logging	Illegal accounting practices
11	Legal and institutional framework	Illegal logging	Illegal transport or trade
12	Legal and institutional framework	Illegal logging	Processing licences
13	Legal and institutional framework	Illegal logging	Prohibited specie
14	Legal and institutional framework	Illegal logging	No illegal logging exists
15	Legal and institutional framework	Property	Existence of regulated concessions or licenses
16	Forest management	Forest management planning	Data and maps for the characterisation of the forest estate exist (property, social and economical aspects, biophysical aspects)
17	Forest management	Forest management planning	Length of border lines of the protected forest area
18	Forest management	Forest management planning	Presence of forest management plan (include Project Design Document)
19	Forest management	Forest management planning	Long term commitment toward the management of forests
20	Forest management	Forest management planning	Diversification of forest products and services
21	Forest management	Forest management planning	The organization has the necessary organizational capacity
22	Forest management	Health and vitality of forest ecosystem	Planting techniques and forest operations planned and adapted to site conditions
23	Forest management	Health and vitality of forest ecosystem	Use of cultivation practices and prevention measures (maintenance of natural forest areas and strips) for limiting the spread of pest and disease in planted forests)
24	Forest management	Health and vitality of forest ecosystem	Thinning and pruning in planted forests are carefully planned and implemented
25	Forest management	Health and vitality of forest ecosystem	Preplanning to ensure seed and seeding availability for plantation establishment
26	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)
27	Forest management	Health and vitality of forest ecosystem	Sustainable level harvesting (include wild herbs and NTFPs)
28	Forest management	Finance	Revenue generated by the management of forest resources
29	Forest management	Finance	Amounts of investments and/or expenditures in the forest sector and related sources
30	Forest management	Finance	Existence of economic incentives, subsidies and/or tax exceptions
31	Forest management	Finance	Amounts of investments in research, technology, development and education

32	Forest management	Finance	Plan for resources requirements and allocation (financial, human, machine, land)
33	Forest management	Finance	Financial sources and investments in the forest sector guarantee the sustainability of management in the long term
34	Governance, disclosure & transparency	Governance	Organization legally identified
35	Governance, disclosure & transparency	Governance	Corporate governance management (e.g.: president different from CEO, etc.)
36	Governance, disclosure & transparency	Governance	Organization is not suffering from negative publicity for environmental, social or ethical reasons
37	Governance, disclosure & transparency	Governance	Commodity related risks is evaluated at board level
38	Governance, disclosure & transparency	Governance	Existence of an individual or committee responsible for environmental and social issues at board level
39	Governance, disclosure & transparency	Governance	Collaboration and/or support of environmental, voluntary and philanthropic Non Governmental initiatives and NGOs
40	Governance, disclosure & transparency	Governance	The organization is monitoring customers satisfaction and integrating customers feedback
41	Governance, disclosure & transparency	Governance	Workers owning part of the company (cooperative, Employee Stock Option Plan, etc.)
42	Governance, disclosure & transparency	Stakeholders	Measure for the knowledge of (local) languages of forest management staff
43	Governance, disclosure & transparency	Stakeholders	Existence of cooperation between involved parties from the forestry sector and the agricultural sector
44	Governance, disclosure & transparency	Stakeholders	Existence of grievance mechanisms to resolve conflicts and complaints between stakeholders
45	Governance, disclosure & transparency	Stakeholders	Stakeholder engagement results are public
46	Governance, disclosure & transparency	Stakeholders	Communication between stakeholders is efficient
47	Governance, disclosure & transparency	Disclosure and reporting	Forest management plan public accessible (include Project Design Document - PDD)
48	Governance, disclosure & transparency	Disclosure and reporting	Periodic reports on forest management practices and impacts are provided by the forest manager and are public accessible
49	Governance, disclosure & transparency	Disclosure and reporting	Publication of rights towards the forest area
50	Governance, disclosure & transparency	Disclosure and reporting	Public disclosure of the use of materials that contain any of the forest risk commodities (timber, soy, palm oil, cattle products, biofuels)
51	Governance, disclosure & transparency	Disclosure and reporting	Reporting on waste, water and soil
52	Governance, disclosure & transparency	Disclosure and reporting	Public reporting on climate change and emissions levels
53	Governance, disclosure & transparency	Disclosure and reporting	Public accessible environmental, climate change and human rights policies
54	Governance, disclosure & transparency	Disclosure and reporting	Reporting on supplier respect of labour standards
55	Governance, disclosure & transparency	Disclosure and reporting	Reporting of transaction that reached Financial Close
56	Community and Employees	Local communities and indigenous	Social impact assessment
57	Community and Employees	Local communities and indigenous	Amounts of investments from the local population in the forest sector
58	Community and Employees	Local communities and indigenous	Existence of the right to education for the local and/or indigenous population
59	Community and Employees	Local communities and indigenous	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	Community and Employees	Local communities and indigenous	Forest management not threatening/diminishing resources (include food) or tenure rights of indigenous people
61	Community and Employees	Local communities and indigenous	Benefits sharing system should be in place regarding timber, NTFPs and services
62	Community and Employees	Local communities and indigenous	Resettlement if unavoidable are carried on with FPIC and compensatory measures are in place
63	Community and Employees	Local communities and indigenous	Prevention of encroachment
64	Community and Employees	Local communities and indigenous	Strategy to protect the lives and properties of local inhabitants from fire in plantations
65	Community and Employees	Local communities and indigenous	The project is reducing poverty

66	Community and Employees	Local communities and indigenous	Forest management pays sufficient attention to cultural, recreational, spiritual and archaeological values
67	Community and Employees	Local communities and indigenous	Water supplies local community
68	Community and Employees	Local communities and indigenous	Support of Universal Declaration of Human Rights (UDHR) and/or Human Rights due diligence
69	Community and Employees	Workers	Compensation and benefits to increase workers loyalty, long term employment and relations
70	Community and Employees	Workers	Absence of discrimination (sex, language, ethnic, etc..)
71	Community and Employees	Workers	Training of employees on human rights policy
72	Community and Employees	Workers	Workers freedom of association
73	Community and Employees	Workers	Absence of forced labour, child labour, etc.
74	Community and Employees	Workers	Internal environmental engagement practices (policy, training of workers, etc.)
75	Community and Employees	Workers	Operational guidelines and training for health and safety procedure and equipment's of forestry workers (include emergency training)
76	Environment	Environmental impacts	Sustainability policies and target for forest risk commodities exists
77	Environment	Environmental impacts	Environmental impact assessment (including emergency, hazards and risks)
78	Environment	Environmental impacts	Projects are categorized based on A, B and C risk level
79	Environment	Environmental impacts	Appropriate site preparation operations to minimize negative impacts are planned and implemented, their long-term effects are evaluated
80	Environment	Environmental impacts	Soil protection regulations and measures against erosion & compaction are implemented (e.g.: ploughing along land contour with a 10% - 5° gradient)
81	Environment	Environmental impacts	Impact of infrastructures should be minimize
82	Environment	Environmental impacts	The natural water cycle is not disturbed or is restored (include riparian buffer zones along water bodies)
83	Environment	High Conservation Value Forests	Forest areas that contain globally, regionally or nationally significant concentrations of biodiversity values (this includes: protected areas, rare or threatened species, endemic species, and seasonal concentrations of species)
84	Environment	High Conservation Value Forests	Globally, regionally or nationally significant large landscape-level forests
85	Environment	High Conservation Value Forests	Forest areas that are in or contain rare, threatened or endangered ecosystems
86	Environment	High Conservation Value Forests	Forest areas that provide basic services of nature in critical situations (this includes: protection of watersheds, and protection against erosion and destructive fire)
87	Environment	High Conservation Value Forests	Forest areas fundamental to meeting basic needs of local communities
88	Environment	High Conservation Value Forests	Forest areas critical to local communities' traditional cultural identity
89	Environment	Plantation design and natural forests	Primary forests and wetlands are conserved
90	Environment	Plantation design and natural forests	Minimum percentage of project area (e.g.: 10%) is protect for biodiversity and ecosystems
91	Environment	Plantation design and natural forests	Protection of World Heritage sites
92	Environment	Plantation design and natural forests	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-economical benefits without significant negative impacts of any kind
93	Environment	Plantation design and natural forests	Objectives of planted forests are clearly described in the planning
94	Environment	Plantation design and natural forests	Careful selection of sites, species and genotype adapted to local conditions
95	Environment	Plantation design and natural forests	Origin of seed, plants, cuttings identified and certified
96	Environment	Plantation design and natural forests	Diversity in composition (size, spatial distribution, number of species and genetic, ages, structures) is preferred
97	Environment	Plantation design and natural forests	Scale and layout of planted forests consistent with the patterns of natural landscape forest stands
98	Environment	Plantation design and natural forests	Genetically modified organisms (GMOs) are not used
99	Environment	Chemicals	The use of biological control agents is strictly regulated
100	Environment	Chemicals	Degree of use of environmentally friendly control agents and organic fertilizers

101	Environment	Chemicals	Fuel, oil, toxic substances and waste are properly stored disposed
102	Environment	Chemicals	Existence and implementation of regulations for the use of fertilisers
103	Environment	Chemicals	Long-term consequences of fertilization, pest control and disease management are assessed in planted forests
104	Environment	Chemicals	Presence of a person responsible for the control of pests and diseases
105	Environment	Environmental Management System	Noise of processing plant (e.g.: mill) in proximity of human settlements
106	Environment	Environmental Management System	Reduction of the environmental impacts of the organization (energy efficiency, use of recycle materials, LEED certification, etc.)
107	Environment	Environmental Management System	Locally sourced products/energy
108	Environment	Environmental Management System	Use of FSC certified paper
109	Environment	Environmental Management System	The organization is not respecting has violated the Convention on Biological Diversity (COD)
110	Climate change ecosystem services	Carbon credits	Carbon credits property rights are clearly defined
111	Climate change ecosystem services	Carbon credits	Carbon project approval from relevant authorities
112	Climate change ecosystem services	Carbon credits	Baseline is estimated
113	Climate change ecosystem services	Carbon credits	Additionally is demonstrated
114	Climate change ecosystem services	Carbon credits	Calculation of leakage
115	Climate change ecosystem services	Carbon credits	Inclusion of permanence (e.g.: buffer)
116	Climate change ecosystem services	Carbon credits	Estimation of net greenhouse gas emissions and removals
117	Climate change ecosystem services	Carbon credits	Monitoring plan
118	Climate change ecosystem services	Carbon credits	Double counting is addressed
119	Climate change ecosystem services	Green House Gases	The organization is not public declared as against Kyoto Protocol
120	Climate change ecosystem services	Green House Gases	An organization policy recognizing the role of forests in climate change mitigation exists
121	Climate change ecosystem services	Green House Gases	Incentives for life cycle assessment
122	Climate change ecosystem services	Green House Gases	The company has a carbon emissions reduction and compensation plan through the forest sector
123	Climate change ecosystem services	Ecosystem services	Climate change is affecting the ability of the organization to produce, source or supply commodities that are at risk
124	Climate change ecosystem services	Ecosystem services	Biodiversity offsetting
125	Climate change ecosystem services	Ecosystem services	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	Supply chain and traceability	Traceability	Sourcing from cooperatives and small scale producers
128	Supply chain and traceability	Supply chain	Supplier using third party independent certified timber
129	Supply chain and traceability	Supply chain	Supplier aware of environmental requirements
130	Supply chain and traceability	Supply chain	A risk assessment for forest risk commodities used by suppliers
131	Supply chain and traceability	Supply chain	Supplier management to avoid using illegally sourced wood materials
132	Supply chain and traceability	Supply chain	Supplier calculating, reducing and compensating GHGs
133	Supply chain and traceability	Supply chain	Supplier management to avoid using material sourced from High Conservation Value Forests
134	Supply chain and traceability	Supply chain	Supplier respecting labour standards
135	Supply chain and traceability	Supply chain	Supplier management to avoid using material sourced from genetically modified organisms
136	Supply chain and traceability	Supply chain	Action to increase the uptake of sustainable produced materials up and down the organization value (include price premium)

137	Supply chain and traceability	International sustainability standards	Fair-trade standards
138	Supply chain and traceability	International sustainability standards	Equator principles
139	Supply chain and traceability	International sustainability standards	IFC Performance Standards (1-8)
140	Supply chain and traceability	International sustainability standards	Global Compact
141	Supply chain and traceability	International sustainability standards	World Bank Group Environmental, Health and Safety Guidelines (HE'S Guidelines)
142	Supply chain and traceability	International sustainability standards	Carbon Disclosure Project (CDP)
143	Supply chain and traceability	International sustainability standards	Third party certification schemes (e.g.: FSC Certification) for the production or sourcing of forest risk commodities
144	Supply chain and traceability	International sustainability standards	ISO 14001
145	Supply chain and traceability	International sustainability standards	SA8000
146	Supply chain and traceability	International sustainability standards	UN Principle Responsible Investments
147	Supply chain and traceability	International sustainability standards	B-Corp certified
148	Supply chain and traceability	International sustainability standards	IRIS system
149	Supply chain and traceability	International sustainability standards	UNDP Millennium Development Goals (MDG)
150	Supply chain and traceability	International sustainability standards	World Heritage Convention (WHC)
151	Supply chain and traceability	International sustainability standards	OECD Guidelines for Multinational Corporations
152	Supply chain and traceability	International sustainability standards	UN Convention Against Corruption
153	Supply chain and traceability	International sustainability standards	Verification of Legal Origin & Verification of Legal Compliance
154	Supply chain and traceability	International sustainability standards	Global Reporting Initiative (GRI)
155	Supply chain and traceability	International sustainability standards	AccountAbility (AA1000)