3.1 Facilitating private forestry investments: a practical approach to risk assessment

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Introduction

The investment profile of forests is characterized by competitive returns, inflation hedging and low correlation to other asset classes; they are therefore considered a good fit for portfolio diversification. Besides these financial characteristics, investments in forests can result in high social and environmental returns. Consequently, private investments into forestry are on the rise. Impact investing[1] in general is gaining importance in global investment markets. It is estimated that to date about US$ 100 billion is invested solely in socially responsible investing (SRI)[2] stock mutual funds[3] and exchange traded funds (ETFs). The demand for sustainable investments, including forestry, will likely increase even further. However, currently most forest investments — approximately 70 percent — take place in non-tropical and developed countries such as the U.S. (Dana Ltd. 2011).

This approach can help identify related risks in order to improve decision making on forest investments.

Experience working with various investor groups from the U.S. and Europe (e.g., investment funds, endowment funds, foundations, banks, insurance companies and family offices focusing on sustainable forest investments) revealed their great interest in extending their investment activities to emerging forest investment countries in Latin America, Africa and Southeast Asia. This interest is mainly due to the higher returns that can result from the comparatively higher forest growth rates and lower land and labour costs. Similar observations have been noted by the Forum for the Future (2009), Glauner et al. (2012) and Brand (2012).

However, investors indicate that they feel impeded by their limited ability to accurately assess the associated risks.[4]

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They commonly perceive the following investment barriers: lack of access to and cost of information; market organization; and lack of experience.

Lack of access to and cost of information

Investors report that their inability to obtain relevant information makes it difficult to accurately assess risk. There are few experts with sufficient knowledge and expertise related to specific geographic regions. The investment process often ends at an early stage due to prohibitive information costs.

Market organization

Compared to the forest investment markets in developed countries like the U.S., the markets of emerging countries are perceived as poorly organized and non-transparent. Well-prepared "ready-for-investment" opportunities are lacking or difficult to identify. Investors have to actively engage to develop such opportunities.

Lack of experience

Investors hold back because emerging forest investment markets do not have proven performance and few positive examples exist at the country level. Some investors are discouraged by the uncertain investment conditions. Since forest investments are characterized by a long timeline, risks that are not eliminated at an early stage will result in high exit costs.

Risk assessment methodology

Forest investments in emerging markets are at an early stage and standardized risk assessment methodologies are rarely available. A best-practice guideline is needed to tackle the complexity of multiple risk factors (Table 1). Although Pricewaterhouse-Coopers[5] has developed toolkits and Zurich Insurance Company offers global risk assessments, these approaches were too broad to serve as precise and project-specific risk assessment strategies (see also Glauner et al. 2012).

A risk assessment approach

The following risk-assessment approach has been developed based on practical experience with forest investments in tropical regions. It covers topics ranging from project scouting and feasibility analysis to implementation.

The aim of the toolkit is to support decision-making during the entire investment process, from project screening and investment decision to implementation. It is designed to minimize risks by guiding the management of information and resource allocation in an optimized and cost-efficient way. This clearly structured and practical toolkit is a framework that can also be used by investment groups who do not have extensive forest investment expertise.

Table 1. Risk categories

Governance	country risk (e.g., political stability, legal security, corruption); foreign investment barriers (international trade, treatment of capital flows, foreign exchange rates, currency stability, tax policies, capital treatment, bureaucracy); agricultural policies; forest land regulations; subsidies; land taxation; licences and permits; illegal logging, etc.
Market	market access (local, national, international); forest industrial sector; competition (local, national, international); log prices; sales of products (local, national, international); sales of lesser known timber species; product diversity (tree species, non-timber forest products, carbon credits); certification schemes, etc.
Production and infrastructure	transport infrastructure (project level, local, national and international); labour (quantity and quality); forest site quality (e.g., soil, topography); forest resources valuation; technology; natural disasters (e.g., wind, fire); pest and disease (e.g., insects, fungus); production cost; electricity and communication networks, etc.
Social and environmental impacts	integration of project in local culture; land tenure conflicts (traditional land-use rights); competition with agriculture or other land uses; labour rights; social insurance; work safety; use of pesticides; biodiversity; sustainable allowable cut, etc.
Management and contractual framework	human resources (expertise, experience, country knowledge); organizational structure; contractual set-up; contractor relations; financial planning; forest management planning; data management; land tenure and use rights; shareholder structure; liability and accountability; vision and motivation, etc.

Risk assessment should ideally be carried out jointly by forestry, finance and legal experts. Country knowledge and expertise in forest policy is of great value in the process, especially in emerging countries where laws and policies can frequently change.

The assessment consists of three consecutive standardized phases:

- pre-selection;
- due diligence; and
- monitoring.

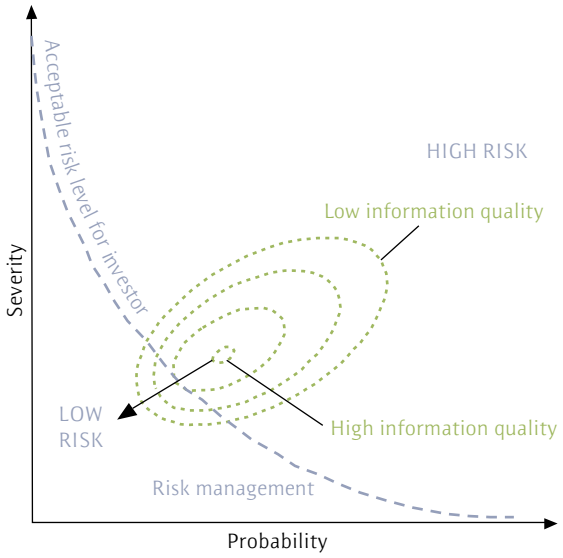
As the investment process progresses, the overall risk decreases and the accumulated costs increase. The toolkit helps to eliminate high risks at an early stage to avoid high exit costs. During the first two phases, the overall risks for the investor are mitigated, mainly by the rejection of specific investment opportunities. When implementation begins, the strategy shifts to risk management.

Risk assessment in forestry

Risk assessment is an integrated component of all three phases. Identifying, mitigating and managing all major forestry-related risks require a systematic and comprehensive risk assessment (Figure 1). Assigning all potential risks to thematic categories (Table 1) ensures that they are carefully considered.

Figure 1. Risk assessment as related to information quality and risk management

The accuracy of the localization of the risk, regarding severity and probability[6] (shown by the dotted rings) increases as the quality of information increases. As shown here, good risk management results in a shift to a lower risk level.



The quality of the risk assessment, particularly its accuracy, depends on the quality of the information on which it builds. Therefore, prior to the risk assessment, the quality of information should be evaluated according to three factors: communication quality; content quality; and source quality.

Communication quality

How is the project information communicated? Does the project developer provide information that is clear, comprehensible and well structured? Is data delivered in standard formats? Is the level of detail of information appropriate? Is the content supported by the way it is presented?

Content quality

What is the statement in terms of content? Is the content relevant, plausible, consistent and complete?

Source quality

Who is the author of the information? Is the author competent and independent? Does the evaluation of the source support reliability, verifiability and transparency of the information?

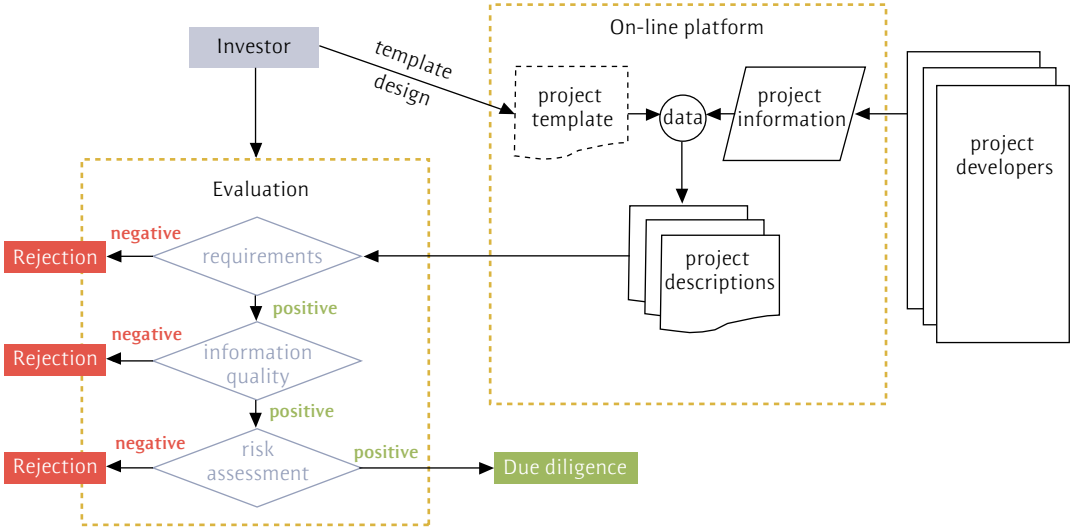
The assessment of information quality is the basis for risk assessment. The probability of the occurrence and the severity of the impact have to be determined for each risk. A likely probability and grave severity indicate a high risk. When a risk exceeds the investor's tolerance level, the project will be rejected. Manageable risks have to be examined to determine whether they can be pushed by active management towards a lower and more tolerable risk level (Figure 1). Projects receive a positive overall rating when all risks are assessed with satisfactory accuracy to be within the investor's tolerance level.

Pre-selection

The objective of the pre-selection phase is to systematically screen the market to identify forest projects that suit the investor's preferences and involve low risks. The screening process aims to select from a large project pool. This increases the number of possible high-quality projects, which allows investments — and risks — to be diversified according to geography, value creation (e.g., timber, carbon credits, non-timber forest products) and forest age classes.

The suggested method (Figure 2) is designed to evaluate a large quantity of projects while keeping the information costs per project low. In order to do this, project information is requested from the project developers. A standardized project template minimizes the time and costs that investors need to incur and allows projects to be compared with each other. The investor controls the structure and scope of the questionnaire. In contrast to the procedure with self-designed project documentation, the project developer is required to answer all questions, even those that he or she might view as sensitive or controversial.

Figure 2. Pre-selection method to screen the market for high-quality forest projects



At present, the forest investment market is poorly organized and nontransparent. An online forest investment marketplace, as developed by OpenForests,[7] provides the infrastructure needed to bridge the gap between investors and forest projects. This platform facilitates the pre-selection process by offering investors access to a large pool of standardized project descriptions while saving the cost of scouting the projects.

The evaluation of the project information starts with an initial assessment of whether the respective project aligns with the investor's requirements (e.g., scale, investment volume, project type, country, etc.). In the next step, the information quality is assessed, focusing on content quality, presentation and communication. The project developer's ability to communicate the investment proposal is crucial for a successful collaboration. This also involves communication skills. Deliberate misstatements often correlate with poor communication and content quality (inconsistencies, lack of transparency). And even if information is presented effectively, it is not necessarily accurate.

If the project description reveals apparent weaknesses in quality, the project is rejected. To ensure cost efficiency, the investor largely waives efforts to evaluate the quality of the source and to verify the information during the pre-selection. This type of evaluation takes place during the due diligence phase. If the communication and content quality is considered satisfactory, the risk of the respective project is estimated. Research is limited to external factors (e.g., country risk) that can be determined with relatively little effort, for example, by using existing online sources (Table 2).

Table 2. Online information sources for the assessment of risk

Source	location
Bureau of Labour statistics	www.bls.gov/fls/
Corruption Perceptions Index	www.transparency.org/research/cpi/overview
FAO statistics	faostat.fao.org/
Forest Investment Attractiveness Toolkit	www.sustainableforestbusiness.org
FSC certification database	info.fsc.org/
Index of economic freedom	www.heritage.org/index/
International Country Risk Guide	www.prsgroup.com/ICRG.aspx
International Tropical Timber Organization	www.itto.int/
Political Risk Service	www.prsgroup.com
The World Bank Doing Business Report	www.doingbusiness.org/
United Nations Public Administration Network	www.unpan.org/News/GovernanceWorldWatch/tabid/749/language/en-US/Default.aspx
World Agroforestry Tree Database	www.worldagroforestry.org/resources/databases/agroforestree

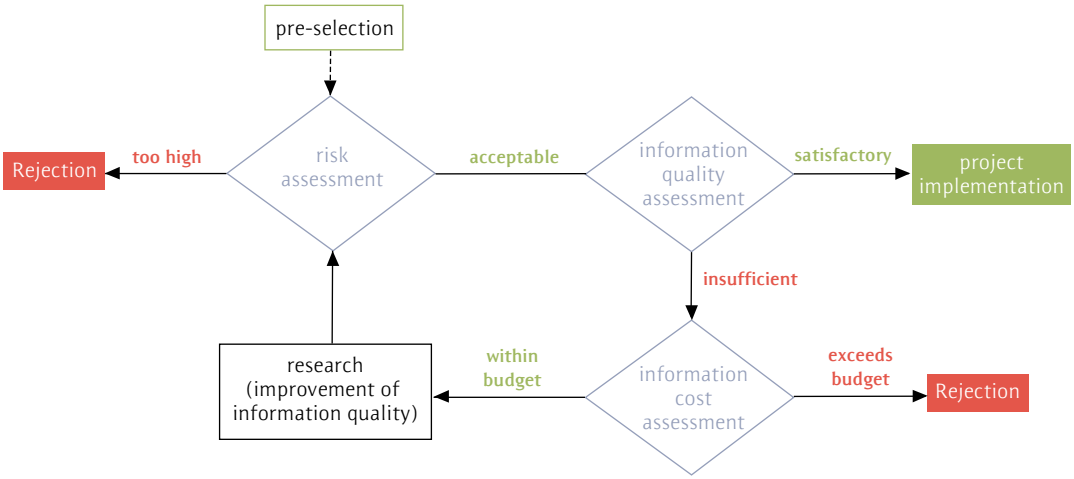
Due diligence

Forestry projects that pass the pre-selection phase are examined further in the due diligence phase. This phase aims for accurate risk assessment based on verified high-quality information. The suggested methodology consists of a processing cycle that is repeated until it results in either rejection or a positive assessment of the respective project. Although the pre-selection phase can be carried out remotely, the due diligence phase requires a project visit to verify the information quality and obtain a consistent overall impression. This increases information costs significantly.

Each project undergoes four steps during the due diligence phase (Figure 3):

- assessment of information cost;
- research;
- assessment of risk; and
- assessment of information quality.

Figure 3. Overview of the due diligence process



Assessment of information cost

Prior to carrying out research the associated costs and budgets have to be determined. In this step, the investor decides if it is cost efficient to carry out further research that can significantly improve the information basis of the risk assessment. Resources are initially allocated to risks with low information quality, but high potential for improvement. Priority is given to risks that are close to the investor's risk tolerance level, since they are closely related to the investment decision. For risks that are clearly classified as high or low, further spending would not improve the overall decision. If the estimated information costs exceed the budget, the information basis cannot be further improved and is not sufficient to implement the project. Thus, the respective project would be rejected.

Research

Given the budget, the information quality as the basis of further assessment is improved by researching additional information. Possible resources are literature, surveys, expert interviews, forestry data, maps and aerial photos.

Fieldwork is an essential part of research, particularly regarding social and less quantifiable factors such as local acceptance, work practices and management quality. Experience has shown that forest information systems (see also Monitoring) are efficient tools in the due diligence phase. Their use in forest monitoring and geodata analysis increases information content and transparency.

Assessment of risk

Based on the available information, risks are identified and assessed. If this step assesses risks that significantly exceed the acceptable level, the project is rejected. In the case of a positive assessment, the project takes the next step.

Assessment of information quality

The overall quality of the available information is evaluated. In addition to the indicators applied in the pre-selection phase (content and communication quality), this step also assesses the quality of the information source. It determines the level of reliability, verifiability and transparency of the available information.

A satisfactory level of information quality is reached when further improvement is not likely to lead to a significantly better or more accurate risk assessment. Due diligence may result in an overall positive assessment of the respective investment opportunity, taking into account the positive risk assessment in the previous step. Otherwise, better information quality is essential. If that is the case, the process cycle is closed and the next loop starts. This ensures an effective allocation of the due diligence budget.

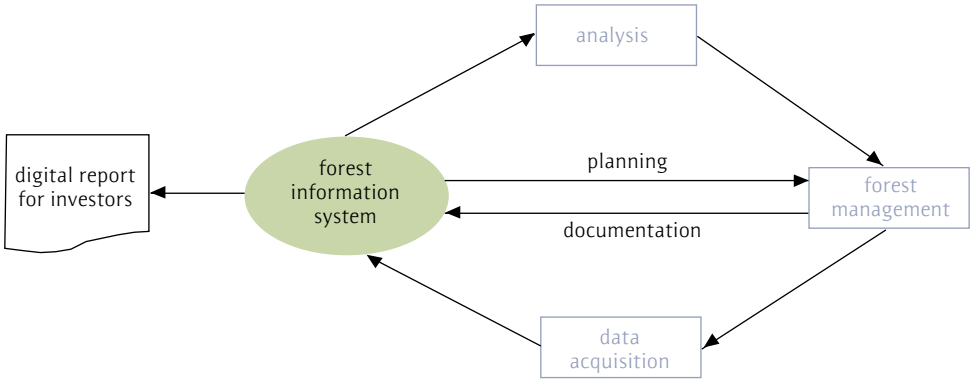
Monitoring

After a successful due diligence process, implementation usually starts. It is crucial for the investor to continuously monitor the progress of the forest project. Forestry projects tend to lack consistency and timeliness in forest data management and reporting. Data are often poorly organized and are processed with inappropriate software. Access to forest information (reporting) for investors and forest managers is often limited due to a disproportionate processing effort. These deficiencies lead to reduced transparency, a lack of understanding of project status, and a high risk of management mistakes.

To address these issues, the establishment of a forest information system (Figure 4) is highly recommended. This provides infrastructure for the storage and analysis of forest

information and the organization of forest management activities. It also serves as a risk assessment tool for investors by allowing direct and continuous access to key information. The scope of a forest information system is mainly production and management, which are the most vulnerable aspects of a forest project.

Figure 4. A forest information system as a monitoring and risk assessment tool



A database system with geospatial capabilities is recommended. This will allow the integration of a broad range of relevant data, such as cadastral maps, land-use and plantation maps, management units, digital elevation models, single-tree measurements, monitoring results from sample plots, management activities and infrastructure.

If database is constantly updated with forest growth information the system will also allow for the planning, documentation and evaluation of forest management activities (e.g., thinning, pruning and harvesting). Maps, reports and analyses can be generated automatically from the data. This allows investors and forest managers to directly monitor the project's performance.

Important production indicators are growth rate, standing timber volume and diameter distribution. Production risks can be minimized if performance deviations are detected in time and appropriate countermeasures are initiated immediately. In addition, environmental goals (like sustainable allowable cut) and certification requirements can be easily evaluated.

Including costs, prices and yield parameters (e.g., cost of management activities, timber prices, timber growth) will extend the scope of the system so that it also can be used to assess financial and market risks. If a forest information system is used, mismanagement and even fraud are more likely to be revealed by inconsistent or insufficient data. In general, a forest information system significantly enhances the overall comprehensibility and transparency of a forest project.

Conclusion

The toolkit can be a guide on how to mitigate and manage risks during the entire forest investment process. It can also assist investors who intend to finance medium and large forestry projects (plantation forestry, natural forest management, agroforestry, REDD+) in emerging countries.

Although the methodology is structured in a way that minimizes information costs, these costs have to be calculated in relation to the investment amount; they may exceed the budget of small-scale forest investors. In addition, not all risks can be assessed by a comprehensive evaluation of the information. For example, risks — including poor interpersonal relations, breaches of confidence and erroneous assessments of professional competence — can only be perceived by experienced decision-makers. They cannot be evaluated in a standardized way.

The toolkit is a flexible framework derived from forest risk assessment practice. It can be adapted to individual conditions while providing a stable structure that helps to improve risk assessment in sustainable forestry financing .

Nevertheless, there are many investment barriers to forest investments in developing countries, and they are often directly linked to the general investment regime in the respective countries. The toolkit cannot improve the overall investment regime in these countries, but it can help identify the related risks in order to improve forest investment decisions. Since it is usually difficult for international investors to have access to or to monitor forestry projects in developing countries, the toolkit can also provide a first step toward real engagement between projects looking for financing and investors looking for high-quality forestry projects.

More and more policy-makers acknowledge the experience of investment funds, pension funds and other similar ventures, and their role in forest finance. It is now up to the policy-makers to improve the general investment regime and establish financing mechanisms that align the financial power of institutional investors with the political goals of sustainable development. Until that is done, forest investors have to choose between waiting for better investment conditions or creating them through their own initiative. Using risk assessment toolkits will be of significant importance in those efforts.

Endnotes

1. These are investments that promote socio-economic benefits.
2. http://online.wsj.com/article/SB10001424052748704425804576220462961462024.html#.
3. See www.investorguide.com/igu-article-481-mutual-fund-basics-types-of-stock-mutual-funds.html.
4. See also Glauner et al. 2012.
5. PWC Forest Finance toolkit: www.pwc.co.uk/sustainability-climate-change/issues/forest-finance-home.jhtml.
6. See also Gadow2011.
7. See www.openforests.com/marketplace for the database.

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