

## Forest Finance

### Basic Knowledge



**This module is intended to increase understanding among the managers of forest enterprises owned by communities, entrepreneurs or governments of the issues associated with the financing of sustainable forest management (SFM). It explains the concept of forest finance and provides an overview of financial requirements and the factors governing the financial needs of forest enterprises. The module outlines key challenges and suggests proactive responses to them, particularly those related to financial planning; economic monitoring; reducing costs; increasing earnings; and access to financing.**

#### **The challenges of forest finance**

Forest finance encompasses all the actions required to secure adequate financial resources for the ongoing management of a forest-based enterprise and to ensure its financial viability and profitability.

Forest enterprises require careful financial planning and sufficient financial reserves to cope with the many troughs in revenue inherent in forestry. Many forest operations are seasonal, for example, which means that revenue may not be collected evenly throughout the year. Forest harvesting may also be hampered by, for example, fire, bureaucracy or extreme weather events, posing further challenges to cash flow. It may take several years for an investment in a planted forest to start generating returns.

The many technical requirements of SFM increase the challenge of forest finance. Activities adding to the cost of SFM include: the preparation and planning of operations that meet SFM standards; the establishment of permanent infrastructure; monitoring; the purchase or leasing of equipment, including for harvesting, skidding and transport; the long-term management of the forest resource, including silvicultural operations and the protection of harvested areas; and, possibly, legality verification and certification. Other aspects of SFM, such as the protection of conservation set-asides, rare species and seed trees, imply the foregoing of potential income. There are also costs involved in the recruitment and training of staff capable of operating equipment and adhering to SFM guidelines, and, in the case of natural tropical forests, in the marketing of a wide range of species. Such SFM requirements increase the need for an adequate cash flow and therefore up-front financing; they also raise the risk for investors and therefore the difficulty of obtaining finance.

Small and medium-sized forest enterprises may particularly struggle to obtain adequate credit for their operations. For example, operations that require external services such as the preparation of management plans and their authorization, or the use of machines for skidding and transporting logs, often exceed the financial capacity of locally based operators.

### ***What needs to be financed?***

Forest managers make investments in the following three broad categories:

1. *Initial investments* to set up a forest enterprise or to make operations sustainable. The establishment of a planted forest or a natural-forest harvesting operation involves costs that are usually funded by loans, which in turn implies the creation of long-term liabilities that ultimately must be serviced with revenue generated by the enterprise.
2. *Expenditure incurred in regular forest operations* funded by income derived from the sale of forest products.
3. *Replacement investment*, such as to replace old machinery and other worn-out capital items, which must be financed by continuously aggregated savings made from the sale of forest products.

### ***What influences the need for financing?***

Expenditure generally increases with the size of the operation, and it is also influenced by the type, mode and intensity of the operation and the quality of management. The approach taken in dealing with disturbances in the production process (e.g. delays due to bad weather) has a particularly crucial effect on costs. In low-mechanized forest harvesting operations, labour (including social security contributions) is often the single biggest cost item. In more mechanized harvesting operations, the cost of machinery can account for up to 80 percent of total costs. Some enterprises subcontract certain operations, such as harvesting, to reduce the costs associated with directly employing staff and buying or leasing machinery, significantly changing the cost structure and financial flexibility of the enterprise. In many cases, transportation costs can also be substantial, depending on the distance to markets for labour, inputs, services and products.

### ***Possibilities for action***

The managers of forest enterprises need to know how much finance is needed, and when; how to access finance from various sources; and how to ensure that financial resources are available when they are needed. This requires careful planning. Operations should be designed in accordance with financial capacity, taking into account the estimated short-term and long-term cash flows. Efforts should be made to avoid overly optimistic estimates of cash flows and to carefully consider potential risks.

If, despite proper planning, the available financial resources and expected earnings are insufficient to finance a profitable operation, three potential actions may be taken:

1. reduce costs by modifying the operation and finding efficiencies;
2. look for financing at competitive interest rates from, for example, governments, banks and private enterprises; and
3. increase earnings by diversifying products, improving marketing, and adopting alternative commercialization approaches (e.g. prices per assortment, negotiation, scaling, and contracts).

### ***Managerial capacities***

Financial management is a complex process, requiring skills and knowledge in, for example, law, administration, accounting, economics and marketing. Many enterprises lack some or all of these skills, and specialized professional services may need to be engaged. Small and medium-sized firms may find that participating in associations or cooperatives of similar enterprises (often referred to as producer organizations) can reduce the cost of such services for individual enterprises. In some countries, governments and non-governmental organizations also provide (or help fund) extension services or development programmes for forest enterprises engaged in SFM, including in forest financing.

### **Forest finance contributes to SDGs:**

**1** NO  
POVERTY



**2** ZERO  
HUNGER



**8** DECENT WORK AND  
ECONOMIC GROWTH



**9** INDUSTRY, INNOVATION  
AND INFRASTRUCTURE





#### Related modules

- [Collaborative conflict management](#)
- [Development of forest-based enterprises](#)
- [Forest certification](#)
- [Forest management planning](#)
- [Forest policy](#)
- [Land-use planning](#)
- [Public forestry institutions](#)

## In more depth

### Financial planning

Financial planning is essential for making accurate decisions on equipment, machines, staff and infrastructure in forest operations. Financial plans show the predicted amount and timing of expenses as well as when there will be cash inflows from sales, credits and loans. Financial plans help forest managers ensure that sufficient financial resources are available to pay expenses, particularly when costs peak (such as during harvesting) and in periods when income is low (e.g. in rainy seasons). Financial plans also help in detecting funding gaps so that timely action can be taken to secure additional funding. Financial plans should avoid overly optimistic assumptions, and they should evaluate all potential risks, such as those associated with subsidies or incentives like payments for environmental services that depend on attaining certain requirements or levels of performance.

Financial planning can span the short, medium and long terms, from periods of a few months to one, five, ten or even 30 years or more. Many private firms and consultants provide services to assist in financial planning.

### Economic monitoring

Economic monitoring is essential for effective financial planning and decision-making in forest enterprises. It involves the documentation of the productivity of forest operations and their costs and revenues over time, and its most critical aspect is the monitoring of capital-intensive forest activities such as road construction, skidding, transportation, and site preparation. Setting up a system for economic monitoring involves the inventorying of assets and obligations, and their values, and the documentation of cash flows and changes in the value of assets such as machines (e.g. due to depreciation). A well-designed monitoring system captures financial flows in various cost categories – such as salaries, machinery, service providers, materials, fees and taxes – which are summarized annually in a balance sheet. In smaller operations, information collected by the monitoring system might be processed and analysed by hand or using simple computerized spreadsheets, while larger companies may require specialized software.

### Reducing expenses

One way of responding to a lack of adequate finance and to increase profitability is to reduce expenses. Reducing the size of forest operations has the most immediate effect on costs but may also affect revenue. In many cases, therefore, it is more effective to reduce expenses by improving the efficiency of production processes. Such improvements may include choosing technologies and machinery better suited to tasks, capacities and know-how; the recruitment of staff capable of handling the technical and logistical challenges of SFM; and the training of existing staff. Improvements may also include the optimization of production processes, such as by reducing the impact of machinery malfunctions by proper maintenance and the regular replacement of ageing machines. The information generated by economic monitoring can be particularly helpful in determining cost-reduction targets.

Reducing staff salaries can be counterproductive to efforts to improve efficiency because well-paid employees have been shown to work more effectively. A bonus system that rewards the exceptional performance of employees and service providers (and discourages sloppy work and delays) can be beneficial for both employers and workers.

### Ensuring liquidity

Liquidity is the ability to convert an investment portfolio (or part thereof) to cash with little or no loss in value, especially to ensure adequate cash flow. Money in a bank account may be considered liquid because it can be accessed quickly and easily, but “liquefying” capital items such as machinery or infrastructure is likely to be more time-consuming and difficult.

All enterprises require a certain level of liquidity to ensure sufficient cash flow to meet operational and other expenses. But this is often a major challenge for forest enterprises because a relatively large proportion of capital is typically fixed in land, forests and machinery, and receipts from product sales may not occur when operational expenses are at their peak.

Many forest enterprises in the timber industry face two particularly critical periods for liquidity in any given year: at the beginning of the harvesting season, when operations must be paid for but income from timber sales has not yet been earned; and between harvesting seasons, when income may be low but machinery and infrastructure must be maintained and certain field operations conducted. It may be possible to negotiate for the postponing of expenditure (e.g. paying for a service only after its delivery) and for payment in advance for timber sales. Other potential strategies include minimizing or avoiding the fixation of financial resources in capital assets, and the scheduling of preparatory activities such as inventories outside the harvesting season to reduce cost peaks. Companies should also aim to build up cash reserves over time.

Another approach to improving cash flow is to replace a portion of fixed costs (expenses that occur independently of what is produced, such

as loan repayments on a machine) with variable costs (expenses directly related to actual production). For example, outsourcing operations to subcontractors might help to reduce the fixed costs associated with owning machinery and maintaining permanent staff as well as to shrink out-of-season overcapacity. Arranging flexible terms of payment with subcontractors, service providers and employees may also assist in ensuring a smooth flow of finances – it might be possible, for example, to establish a production-dependent salary component or to compensate for reduced salaries by paying bonuses at the end of a harvesting season depending on the profit achieved by the enterprise. Another possibility is to use standing timber as collateral; for example, a plantation of teak, which has a known high-value market, could serve as a guarantee for a loan if cash flow needs to be increased. Such a practice could be generalized through public policies.

### ***Exploring markets***

An important prerequisite for earning adequate revenue is knowledge of the marketplace; this is even more important for SFM regimes that involve the increased harvesting of “lesser-known” timber species, some of which are potentially valuable timber species. Market research, therefore, may be useful for determining whether the best prices are being obtained for existing products and for identifying and assessing markets for new products. While prices for high-in-demand species in export markets may be strong, ensuring the profitability of lesser-known species, as well as of most non-wood forest products, may require considerable research and marketing. Nevertheless, a careful analysis of local, national and export markets may reveal opportunities for additional revenue. For example, the production of value-added products, and timber certification, might open up new opportunities in export markets.

Some countries have public and private schemes in which payments are offered to forest owners and enterprises for the provision of environmental services such as those associated with biodiversity conservation, water protection and carbon sequestration. Forest enterprises should weigh the risks associated with participation in such schemes to ensure that the benefits outweigh the costs.

Finally, enterprises may evaluate whether expanding production or investing in new technologies might increase their profitability, although instituting such options is likely to require substantial managerial capability, special competencies and the hiring of specialist staff. Cooperation with other enterprises, potentially through associations or cooperatives, might help in finding new clients, exploring new markets, and strengthening bargaining power to obtain higher prices.

### ***Investment decisions***

Financial planning is essential for good investment decisions on, for example, bids for forest concessions; constructing buildings and roads; harvesting mode; silvicultural treatments; the preparation of management plans; and staff training. For most enterprises, the purchase of machinery is by far the single biggest investment decision they will make. Investment decisions should involve a three-step analysis:

1. the calculation of cost–benefit ratios and profitability indices such as net present value and internal rate of return;
2. the assessment of risk by estimating pay-back periods and doing a sensitivity analysis involving “pessimistic” scenarios; and
3. the consideration of all other implications of the investment, such as reliability and social and environmental aspects.

### ***Additional funding***

The vast majority of forest enterprises require at least some level of external funding to finance SFM, and the procurement of loans and use of subsidies, therefore, are essential tasks of forest enterprise managers.

Larger investments are commonly financed through bank loans, the conditions of which can vary widely. Many rural and development banks run special credit lines with favourable conditions for forest enterprises engaged in SFM. Moreover, many countries provide tax breaks for forest enterprises that can prove they are carrying out specific measures for environmental conservation. Certification by the Forest Stewardship Council or the Programme for the Endorsement of Forest Certification, or some other form of external assessment, is usually required for enterprises to benefit from such tax breaks or favourable terms of credit.

Enterprises should be clear on the purpose of any loan and realistic in assessing their capacity to make repayments. Interpersonal networking, information available online, and consultations with bank managers or other service providers are all potentially useful sources of information on credit packages. Obtaining the materials and documents required to secure a loan may take considerable time, and incomplete documentation and a poor credit history can delay or even prevent loan approval; moreover, failed applications may reduce the likelihood of future loans.

The emergence and design of diverse funding possibilities is highly dynamic and strongly influenced by the politics of the day. Enterprise managers should be alert to new opportunities and should check regularly for updates on the websites of relevant government agencies, as well as the websites of international non-governmental and intergovernmental organizations with a presence in the country or region. In many countries, specialized brokers facilitate contact between forestholders and managers and lending institutions, which can increase access to larger investments. Some governmental extension services, non-governmental organizations, universities and research

organizations provide help in obtaining funding from external sources; forming cooperatives and associations is another way in which small and medium-sized enterprises can increase their access to credit and other funding opportunities. However, for traditional forest communities that lack the documentation, liability security and skills to formally access loans, informal financing schemes grounded on personal relationships may be the main possibility for acquiring additional funds.

### ***Financial attractiveness of SFM***

The long-term financial attractiveness of forest management is a fundamental prerequisite for the success of SFM. As shown above, functioning forest enterprises face immense challenges in proper financial management, but SFM also offers several potential financial advantages. For example, the effort made by an enterprise to achieve SFM encourages innovation and structural improvements that enhance its professionalism and the quality of its operations at all levels, including management. Preparatory activities such as inventories and planning have the potential to reduce production costs, particularly through the more effective use of cost-intensive machinery and the minimization of timber losses. SFM facilitates access to often-subsidized financing opportunities in the form of credit, loans and grants, as well as to tax breaks. SFM-certified enterprises may obtain preferential access to stable markets and gain reputations for responsible behaviour. Ultimately, SFM helps ensure the long-term economic use of forests and continued access to the resource and markets, benefiting both the forest enterprise and the community at large. For enterprises to make best use of the advantages offered by SFM, attention to high-quality financial management is essential.

## E-learning

### [Sustainable financing of Forest and Landscape Restoration](#)



**To meet countries' national commitments to restoring degraded landscapes, adequate public and private investments are needed to support the different steps of the FLR cycle. Financing sources are more efficient when used in a coordinated way.?**

## Further Learning

**Colan, V., Pokorny, B., Capto, J. & Sabogal, C.** 2007. *Manual de monitoreo de producción y costos de operaciones en concesiones forestales con fines maderables en la Amazonía Peruana*. Pucallpa, Peru, Center for International Forestry Research and Instituto Nacional de Recursos Naturales.

**Eldenburg, L. & Wolcott, S.** 2004. *Cost management: measuring, monitoring, and motivating performance (management accounting)*. John Wiley & Sons.

**Matta, R.** 2015. *Towards effective national forest funds*. FAO Forestry Paper No. 174. Rome, FAO.

**Pokorny, B., Palheta, C. & Steinbrenner, M.** 2011. [\*Custos de operações florestais: noções e conceitos\*](#). Série Documentos 373. Belém, Brazil, Embrapa Amazônia Oriental.

**Gregersen, H.M., Contreras, A.H. & Arnolds, J.E.M.** 1979. *Economic analysis of forestry projects*. Rome, FAO.

**Klemperer, W.D.** 2003. *Forest resource economics and finance*. David Klemperer.

**Morin, J.F. & Orsini, A., eds.** 2014. *The companion guide to global environmental governance*. Abingdon. Abingdon, UK, Routledge.

## Credits

This module was developed with the kind collaboration of the following people and/or institutions:

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