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**Sustainable Farm Forestry in the Tropics: Social and Economic Analysis and Policy, edited by S.R. Harrison & J.L. Herbohn**

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***Sustainable Farm Forestry in the Tropics: Social and Economic Analysis and Policy.*** Edited by S.R. Harrison & J.L. Herbohn. (Northampton, MA: Edward Elgar Publishing, 2001) Pp. 292. \$90.00 Hardback.

Throughout the tropical forested regions of the world, there has been tremendous concern and interest in encouraging and developing small-scale forestry over the last 20 years. The typical response to tropical deforestation has been large planting programs based on an industrial forest model, including exotic species and monoculture plantations. The impacts of an industrial forest model have often included many negative externalities, including loss of forested acreage; community disruption and displacement of indigenous peoples; and reduction in biological diversity, water quality, and soil fertility. The authors present small-scale, sustainable farm forestry as an approach that might complement large-scale, intensive, industrial forestry in the tropics and mitigate the negative externalities associated with the latter.

The editors have collected 18 papers (chapters), contributed by 21 different authors, related to the issues of small-scale farm forestry in the tropics. The authors group these works into four major sections, with an introductory and summary chapter written by the editors.

The first section, "Setting the Scene," includes three chapters on the development and history of small-scale farm forestry, tropical plantation development, and silvicultural research on rainforest tree species. Based on experiences from the North Queensland region of Australia, it describes a familiar pattern of forestland development and attitudes towards forests and forestry. Forest clearing for agriculture and development was extensive in the region and exposed infertile and fragile soils to an unsustainable level of use. Valuable species were identified and harvested at unsustainable rates. Government intervention came in the form of an industrial, plantation forest model, involving exotic species and largely ignoring native forest restoration. The last chapter of the section details research needs in silviculture to address the restoration of native species and more biologically diverse forests in the region.

The second section is titled "Timber Benefits and Market Considerations." Here, in six chapters, are financial analyses of forest schemes that are viable for small-scale farm forestry. The first three chapters in this section address the advantages and difficulties of using native, high-value trees in mixed species forests on small landholdings in the context of silvicultural knowledge (both at the research level and at the landowner level), investment potential, financial risk, estimation of future yields. The second three chapters discuss markets that are available to small-scale forestry. The use of portable sawmills and chainsaw milling is presented as an appropriate technology (despite efficiency drawbacks) for small-scale forestry. Small production facilities require low capital inputs, offer production flexibility, provide for on-farm use of wood, and encourage small-farm forest landowners to enter the wood products market with high-

quality and niche wood products, and in some cases compete in an industry that is dominated by large public landholdings and a concentrated primary forest products industry. The marketing portion cites most of its examples from the Queensland, Australia, experience.

In the third section, the editors have grouped four papers (chapters) describing "Non-Wood Benefits." Here the authors identify the importance of non-wood benefits of forests to indigenous peoples and communities in the tropics. The economics of non-wood products in the tropics is presented as a complex, highly vertically integrated system, interwoven into the social structure of many tropical communities. The monoculture, industrial-based forest development model tends to disrupt these community economic systems, but since community forestry systems are often not quantitatively measured by market mechanisms, the economic disruption is an externality that has not been considered in previous policy making. Valuation of forests for non-wood benefits is also identified as an area critically lacking in the tropics. Even in the case of timber production, valuation processes often ignore or incorrectly assess the value of timber's contribution to total value. Valuation of non-wood benefits is acknowledged, but rarely quantified or incorporated into land values. The authors conclude that reforestation does not yet have a significant positive impact on land valuation in the tropics. The authors conclude this section with two chapters addressing the quantification of non-wood forest benefits. The first is through a financial evaluation of cash flows in a riparian revegetation project, and the second is through the inclusion of non-timber benefits in accounting reports. Neither case is completely successful in providing numeric results that support a "socially optimal" resource allocation, but they demonstrate the evolution of classical accounting and financial analysis towards including non-wood (non-market) benefits of forestry.

Having described the development and biology, and the wood and non-wood benefits of tropical forestry, the editors complete the book with a section titled "Developing Policies to Encourage Small-Scale Forestry in the Tropics." The effects of taxation on forestry are discussed in detail for Australia, but the authors provide no information on taxation laws or impacts in other tropical countries. Landowner attitudes toward forestry are examined in Australia, and the social and economic factors inhibiting farm-forestry are presented as "keys" that need to be unlocked for small-scale farm forestry to flourish. Social and community forestry examples from India and the Philippines are presented that emphasize the tremendous importance of involving *people* and coordinating with existing social structures and cultures in reforestation efforts. The authors provide two case studies that support a position that reforestation, to be successful, must coincide with improving the welfare of people living in and among the forest. Two concluding chapters present institutional impediments to farm forestry and stumpage price determination in Australia and provide

insights into the impacts of public market interventions. While well intended, government intervention into free markets often has unexpected and undesirable results, the most significant being a lessening of market adaptability to changes in knowledge. While some general extensions to other tropical countries can be made (need for technical support, reduction of economic risk associated with length of production, landowner education, dilution, fragmentation, and conflicting government support), there is no specific information provided in the text about these issues in other tropical countries.

The final chapter provides an excellent summary of the book and presents a concise and well-considered list of policies that will encourage small-scale farm forestry in the tropics. Reading the concluding chapter first might provide a reader with the best insight into the book's content and value.

While the content is not exclusive to Australia, the overwhelming majority of information is based on Australia's North Queensland region, with some input from work in India and the Philippines. Tropical forestry in Africa, South and Central America, and other parts of Southeast Asia and the Pacific are not included. The authors themselves raise an important issue. Australia is a developed nation, and its experience with forest policy and interaction between biological, scientific, social, and economic systems may not be a good predictor of solutions for developing countries. For example, one significant difference between Australia and developing nations in the tropics is the stability of capital costs. In the last twenty years, Brazil has suffered from triple digit inflation, and countries such as Columbia and Costa Rica have experienced inflation in excess of 20 percent per year in the last decade. This certainly has a major impact on forestry investments, and solving this problem is another key in promoting investment in forests at all levels.

Within the context of north Australia, the authors have done an admirable job of linking social, technical, biological, and economic elements of forestry. The problem is tremendously complex, and solutions that do not recognize and address all the elements of the problem are unlikely to succeed, or may have unintended results.

The authors place almost no emphasis on certification and labeling of forest products in small-scale farm forestry. Their argument is that in the case of on-farm (internal) use and domestic supply and consumption of wood products from small farms, certification and labeling are not critical issues. While this premise may be true for internal use of forest products by landowners, certification appears to be one of the most pressing forest policy issues in nearly all developed nations, even when the wood is not exported. Since the authors themselves present "support for timber exporting" (Chapter 9 and page 281) as a policy to encourage small-scale farm forestry, the lack of information on certification is disappointing.

The authors do a good job of keeping the material appropriate for a novice reader, but a glossary of terms and an appendix explaining some of the more technical concepts (*e.g.*, monopsonist, externalities, capital gains, marginal cost/marginal revenue) would enhance the usefulness of this work.

The text is valuable in that it describes tropical small-scale farm forestry and the complex interrelationships between social, economic, and biological issues quite well. It's two major weaknesses lie in the lack of information about certification and reliance on experiences and data from one country that is not representative in terms of development status. For readers interested in tropical forestry in a developed nation, the book is a detailed and excellent source of information.

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