

values of forests, biodiversity values, carbon sequestration, and other ecosystem values, timber economics also expanded its domain to become more truly forest economics. This book reflects the strong dominance of timber economics while dealing with the newer topics as well.

This is a textbook on forest economic theory and pays little or no attention to the actual evolution of forest resource use, deforestation, production and prices (although its structure reflects that evolution to a considerable degree). It is meant for postgraduate students and is exclusively mathematical. That is, all questions are formulated in precise mathematical terms and their solutions found mathematically. Comfort with calculus is an essential prerequisite for using this book.

The book begins with the Faustmann rule, the solution to the harvesting problem for a single even-aged stand of trees under the assumption that all future prices are known, and that there is a constant and known interest rate at which the owner can freely borrow and lend. It goes on to consider the implications of relaxing these assumptions in different ways. For example, it incorporates the concern with recreational uses of forests in temperate countries by examining the harvesting problem when the volume of standing timber is valued in itself. It examines the problem when there is spatial and temporal interdependence in amenity values of stands. It goes on to consider appropriate tax policy when both timber and amenity values are a concern. Uncertainty about future timber prices, interest rates and possible damage to trees makes the Faustmann problem much harder to solve. It requires the use of stochastic calculus. This is taken up towards the end of the book and the necessary mathematical tools developed.

One chapter examines the use of auctions and other policies for preserving biodiversity in boreal and temperate forests. The idea is to find a suitable mechanism for the government to pay private forest owners and motivate them to manage their forests in a way that will conserve biodiversity. This chapter makes use of the economic theory of auctions. Although the context is not that of tropical forests, these ideas could be adapted for use in India.

The book has only one chapter that explicitly deals with problems of forestry in a developing-country context. It con-

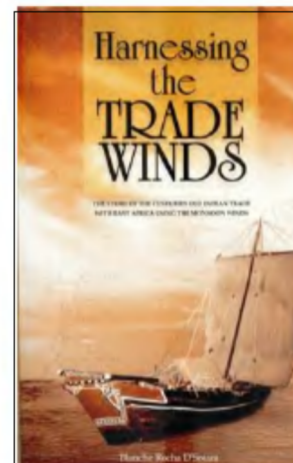
siders the problem of imperfect monitoring and enforcement of logging concessions to private companies, a problem that has led to much deforestation in south-east Asian countries, and also in India to some extent. It examines the optimal design of concession policy in terms of three parameters: concession size, royalty rate and auditing probability. It is shown that an increase in concession size reduces the probability of illegal logging, but the possibility that auditors may be bribed reduces the optimal size of the concession.

A second important cause of tropical deforestation is conversion of forest to agriculture. Allocation of private land to plantation forestry can reduce pressure on natural forests. These issues are taken up in this chapter in the context of migration and imperfect enforcement of property rights in plantations and felling restrictions in natural forests. This chapter does discuss some empirical findings on tropical deforestation, for example, the fact that higher wage rates tend to reduce deforestation. But it does not seriously attempt to paint a picture of how tropical deforestation has progressed or of the various forces that have driven this. The absence of historical context means that this book cannot be used to get a picture of these issues.

This statement applies to the book as a whole. It is best used for getting acquainted with the mathematical tools used by economists for examining the timber harvesting problem in various contexts. It can also be used as an introduction and reference book for other topics, such as the use of payments for biodiversity conservation, now commonly known as payments for ecosystem services and abbreviated as PES.

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Harnessing the Trade Winds: The Story of Centuries Old Indian Trade with East Africa Using the Monsoon Winds. D'Souza, Blanche. Zand Graphics, Nairobi, Kenya. Available from African Book Collective, Oxford, UK/Michigan State University Press, East Lansing, MI, USA. 2008. 204 pp. Price: £10.

This slim volume is apparently the first and 'most direct statement on brown peoples' transcripts over at least three millennia of trade, labour, and migrations against a pervading backdrop of Arab, European, and African encounters in east Africa and the Indian Ocean'. The general and dominant academic opinion has been that African history is only 'black and white'. The Arab, African, and European sources of information have downplayed the importance of Indian influence in the Indian Ocean, even though it has contributed substantially in east Africa, stemming largely from their trading activities, to the development of agriculture, industry, and globalization of trade (Foreword).

This book paves the way for a social scientist to delve deeper into the subject in future. The author has used the term 'Indian' to cover the people of the entire Indian subcontinent (the present south Asia).

The author, a Kenyan of Indian origin, is a teacher and researcher by profession. She left Kenya for Karachi as a child with her parents, studied there, and returned to Kenya in 1962. The author worked also in the US Congress library for some time.

During the period she worked there, the author became aware of the invaluable historic and prehistoric contributions of

the people of the Indian subcontinent in developing and opening up of eastern and central Africa and the Indian Ocean islands and, further, that these have been largely overlooked by the African, Arab, and European chroniclers and historians. To make up for this deficiency, she decided to prepare a monograph on the contributions of the (extended) Indian diaspora on this topic. D'Souza conducted her research in India (Mumbai, Goa), Zanzibar (library and archives), Kenya, and the US Congress library.

The monograph is divided into 18 chapters. This is complemented by ca. 300 references and an index. Eight chapters deal with Indians in east Africa, Zanzibar, Tanganyika, Uganda, and Kenya, and their relationships with the Arabs, Portuguese, and the English. Five chapters discuss about Indians as traders and indentured labour, and their invaluable contributions towards developing early trade and commerce in eastern Africa and opening up the immediate interior region. Three chapters deal with the early prehistoric and historic periods detailing the discovery by the Indians more than 2 millennia ago of the monsoon and the accompanying trade winds and developing them for initiating sea trade, first, with the Arabian peninsula (Oman and Yemen), Iran, and the Red Sea, and then with eastern Africa. The introduction of several Asian crops to Africa from India and the Far East is also discussed – principally rice, coconut, sugarcane, banana, jack, breadfruit, spice crops, cotton, and Asian yams and their cultivation methods. But the relative contributions of the people of the Indonesian archipelago who had settled in Madagascar during early historical times and of Indians remain a grey area.

More than half the volume deals with the colonial historical period. We shall not go into their details except to point out the very high levels of appreciation that used to be expressed by various distinguished Europeans for the character, conduct, and contributions of the Indian expatriates in east Africa and the islands. Incidentally, the indignities inflicted on the Indian immigrants and labour from various governments and successive administrations of the region have also been highlighted. And its response from the subcontinent's diaspora has been meek and mute, it is pointed out.

The author discusses how the early people of the subcontinent discovered the

monsoon winds almost three millennia ago and took advantage of it to travel from the subcontinent's west coast during the northeast monsoon period (November to March) and return home with the onset of the southwest monsoon (April to September). The author has also quoted some seemingly authentic references to suggest that the people of the subcontinent were the first to locate the source of the Nile river and also discover Lake Victoria. These have been attributed to the Vedic period (which is the first half of the first millennium BCE, according to Romila Thapar (*Early India*, Penguin/Allen Lane, 2002)).

The author has highlighted the observation of some historians that Hippalus, who is credited with discovering the monsoon, is actually not the name of any individual, but was the name given to the monsoon by the Indians. Roman sailors discovered in 45 CE the secret of using the monsoon for Indian Ocean travels, and the Greeks stumbled upon it in 50–60 CE. Initially, the Indians brought silk, cotton, cotton clothes, precious stones, spices, and ivory from the subcontinent for the Greek, Egyptian, and Roman empires. The early Indians travelled in dhows (sewn boats) of up to 100 tonnes capacity. They were mostly made of teak wood, and were sewn together by coconut fibre and rope. Cotton and cotton textiles were unknown to the Africans before the Indian trade began and the credit for introducing cotton cultivation to Egypt should go to the Indians, according to the author. While the Indians from the Indus valley had established maritime contacts with Mesopotamia and Egypt by about 300 CE, their direct contacts with east Africa is traced to the age of the *Puranas* (300–700 CE). The trade winds could take the early Indian sailors comfortably up to Pemba and Zanzibar, and with some difficulty, up to Madagascar. When the Indians first arrived there, they saw that the people of Sumatra, Borneo, and Sulawesi were already settled there. The author has also cited some authors (Keshy 1977) to observe that traders from India, Arabia, and Persia (now Iran) were already visiting the east African coast before the Iron Age (1000 BCE) in dhows that were propelled by the trade winds.

Incidentally, some of these observations are not mentioned in UNESCO's 8-volume *History of Africa* (1981–93). But the references given by the author also

appear to be authentic. This may be an instance for the lament of the author given in the Preface of the book that the Indian contributions to the development of early and sustained contacts with Africa have been largely ignored, or at best underplayed by the mainstream historians. At one point, the author states that the prehistoric Indian trading circuit included Egypt and Sofala (Mozambique) in the west and south, to the Indonesian archipelago and China in the east and north.

Altogether the author, though not a researcher in the traditional sense, has done a very commendable job in sourcing the information from a wide range of material, and putting them together in this volume. She has succeeded in knitting this together to present a comprehensive account of the significant contributions of the Indian diaspora in opening up the east African coast and the immediate interior and sowing the first seeds of prosperity in these regions through trade and commerce. She has also highlighted the contributions of the people of south Asia and Indonesian archipelago in introducing a large number of important crop plants to Africa such as rice, banana, sugarcane and cotton. It is not widely known that banana is the staple food of the people of east and central Africa (annual per capita consumption, 100–600 kg versus 17 kg globally). Asian rice too is a staple food in large area of Africa.

Some detractors may point out that overall, the chapters could have been better organized, especially those relating to the earliest period, or that a few references are incomplete. There are also a couple of grammatical errors. But these are only minor aberrations in an otherwise good publication, which is also very modestly priced.

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