

Geo-trekking in Ethiopia's Tropical Mountains: The Dogu'a Tembien District. Edited by Jan Nyssen, Miro Jacob, and Amaury Frankl

Author: Novo, Paula

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Geo-trekking in Ethiopia's Tropical Mountains: The Dogu'a Tembien District. **Edited by Jan Nyssen, Miro Jacob, and Amaury Frankl**

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Paula Novo

paula.novo@sruc.ac.uk

Land Economy, Environment & Society, Scotland's Rural College (SRUC),
 Peter Wilson Building, Kings Buildings, West Mains Road, Edinburgh EH9
 3JG, Scotland

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This 2-volume geo-guide provides a comprehensive account of the geological, ecological, and sociocultural environment of the Dogu'a Tembien District in the Tigray region of Ethiopia. As laid out in the preface, the geo-guide aims to compile and make accessible to the wider public the scientific knowledge authors have developed in the region over the past decades. The edition reviewed comprises 35 chapters grouped into 7 parts (though the table of contents makes reference to 38 chapters grouped into 8 parts). The bulk of the book is dedicated to chapters focusing on the geology, geomorphology, and hydrological processes that characterize the local environment. However, there are also chapters covering land and agriculture management and, more succinctly, social, historical, and cultural aspects.

In general, chapters are fairly independent from each other, though there are some overlaps and cross-references. The editors missed an opportunity, perhaps, to structure the book in a way that acknowledges chapters' synergies more closely, as there are a few instances of unnecessary repetition, for example, on soil and water conservation approaches. Beyond this, the guide mostly comes across as a compilation of papers. This does not detract from the stand-alone value of each chapter, but makes for tedious reading at times. It also means there is very little integration across chapters, which could have helped elucidate the complex dynamics underpinning some of the processes described, such as those associated with soil degradation and restoration processes, from an interdisciplinary perspective.

As a geo-guide that aims to introduce the region's natural heritage to the wider public, some of the chapters are too jargon-heavy, and probably not accessible to an uninformed readership. The first part of the book already goes into quite some geological detail in setting the scene, which is then expanded in part 2. While this is a testament to the rich geological heritage of the region and the volume of work authors have done to document and understand it, most chapters may be quite difficult to navigate for those less well-versed in Earth sciences. However, this is partly

mitigated by the extensive use of maps, illustrations, and photographs in most chapters. I particularly enjoyed chapters 11 and 35, covering the fossil evidence and local myths, respectively, related to the natural environment of Dogu'a Tembien. Both chapters combined scientific and local knowledge in an accessible and pedagogical way. In particular, I was left wondering if the topic of local myths could have served as the starting point for the book, given that it connects the traditional local knowledge with the geological phenomena that the book describes from a scientific perspective.

Some aspects that receive less attention in the book are those related to the historical, sociological, and cultural dimensions, which are mostly concentrated in part 7. There is an initial chapter on the political ecology of land degradation, but I had the impression that this could have expanded to look at the way costs and benefits from exclosures and soil and water conservation measures are distributed. In a recent article, Gebregziabher and Soltani (2019) suggest that while attitudes toward exclosures are largely positive, local households are less enthusiastic about their future expansion. Their results suggest that this is explained by the potential trade-offs between exclosures and availability of grazing lands as well as the impact new or expanded exclosures may have on households' capacity to continue engaging in livestock husbandry. The book falls a bit short, perhaps, in acknowledging the role both ecological and geographical attributes of exclosures play in balancing costs and benefits, as well as the way they are distributed across the local population.

One of the arguments the book puts forward from the start is that promoting geotourism in the region can enhance conservation efforts by raising awareness of its existing geoheritage, both locally and internationally. This is supported by other authors, such as Williams (2020), who point to the role of education in the successful safeguarding of heritage. As Williams (2020) emphasized, there is currently a lack of knowledge available to a nonspecialist audience. In this sense, *Geo-trekking in Ethiopia's Tropical Mountains* is an excellent resource to fill some of these gaps, though better suited for specialist audiences. This geo-guide provides an in-depth description of the geodiversity of Dogu'a Tembien and, as such, is a unique resource for those interested in the breadth and depth of the region's geography.

It is, however, unavoidable to question the sustainability of geotourism as a strategy to conserve local geoheritage in light of the current global pandemic and ongoing armed conflict in Tigray. As Jozef Naudts and Sil Lanckriet argue in chapter 5, on the political ecology of land degradation in the Tembien Highlands, land degradation processes are shaped by political and economic structures and power relations. Thus, the Civil War Period (1974–1991) resulted in widespread land degradation that has been overcome gradually through land distribution and implementation of soil and water conservation policies. System resilience is therefore the result of short- and long-term dynamics. While resilience often accumulates through slow processes (Folke et al 2002), both fast and slow processes can lead to

its erosion. While the book's editors and contributors could not have anticipated the conflict or the pandemic, these events pose a challenge to conservation approaches relying on tourism, particularly of an international nature. They also bring into question the conservation efforts achieved so far, and their sustainability in the face of a humanitarian crisis.

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