Geotourism interactions with Christian Orthodox religion in Tembi (Tigray, Ethiopia)

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Geotourism combines abiotic, biotic and cultural aspects. In Tigray in northern Ethiopia, the Orthodox Christian religion is a dominant component of culture, that highlights the importance of geology and the wider natural environment, and creates great visibility for it.

- Hundreds of rock churches have been established in various lithologies, often in very scenic landscapes and are a major tourist attraction in Ethiopia;
- Around every church in Tembien, a sacred forest is present, remnants of the primary forest, 1 ha up to 1 km\(^2\) in size. In such a way, the believers try to protect God's creation; it is also a way to protect the church site from erosion and provide a pleasant microclimate;
- Numerous, often strong springs are considered as “holy water”, that has the power to cure various diseases; people travel long distances on foot, either to spend a required period of time near the spring, or to obtain water, often mixed with soil that will be carried home;
- Major churches and “holy waters” are located in remote places; pilgrims follow semi-fixed pilgrim ways, along which basic facilities are established and where riparian people are not surprised by the presence of trekkers;
- As it has been created by God, there is a general sense for environmental protection, which is evidenced by the numerous birds present, the status of forests, construction of nest boxes for doves (representing the Holy Spirit), or the status of wild animals such as leopards;
- Underground tunnels, natural caves (Zeyi cave is 364 m long) or caverns in rocks play a crucial role in ancient traditions of the Tigrayan highlanders; their religious use is considered as a
christianisation of an earlier sacred spot;
- There are numerous impressive popular geological myths inspired by religion – for example a fault line that evidences a path of a sacred snake, a petrified marriage party, a 150 Mg rock that was rolled by one Mr. Ilias for sake of church building - the storytelling exemplifies the Tembien Highlands' geoheritage value;
- The function of these sacred places as a main destination for domestic tourism contributes to popularising geology in the society.

As geosites are so highly valued in local religious beliefs, introducing a secondary function as geosites requires specific challenges to be taken into account, besides the common drawbacks of tourism in developing countries:

- Problems of access to churches, forests, caves;
- Gender neutral geotourism vs patriarchal religious attitudes;
- Conservation vs "modernisation" of rock churches and sacred sites;
- 4.5 billion years History of Earth vs 6000 years since Genesis;
- Information boards at geosites: religious narratives vs scientific understanding;
- Showing appropriate respect to the sacred environment;
- Preparation of appropriate and site-specific souvenirs; and
- Community ownership and benefits of geotourism.

In Tembien, the local society has preserved sacred geosites which are important for their self-definition as societies protected by divine powers. Mutual respect, openness and a participatory approach are key when sharing the preserved sites to geotourists.