

Map of Tigray's mineral resources (north Ethiopia) - Canadian and other international mining licenses

by

Jan Nyssen (Department of Geography, Ghent University, Belgium)

Kiros Hailemariam (senior Ethiopian scientist; publishes under a pseudonym for safety reasons)

Nyssen, J., Kiros Hailemariam, 2022. Map of Tigray's mineral resources (north Ethiopia) - Canadian and other international mining licenses. Zenodo. <https://doi.org/10.5281/zenodo.6525135>

In Tigray, artisanal mining of gold in the low-lying areas with outcropping Precambrian rocks is one of the major off-farm income sources¹. The 17th C. Portuguese traveller Barradas had already mentioned gold production in Tembien². Rural youth seasonally migrate to inhospitable lowlands and gorges such as the largely uninhabited Weri'i River valley, to search for placer gold, washed out from weathered gold-containing quartz veins within the meta-sediments and meta-volcanics². In recent decades, large scale gold exploration and mining of gold deposits has been carried out in various parts of Tigray by local (such as the Ezana Mining Development P.L.C.)³ and several foreign exploration companies particularly from Canada. Recently, The Ethiopia Cable exposed links between big Canadian mining interests and a renewed PR campaign (involving Canadian professor and lobbyist Ann Fitzgerald) to whitewash the Ethiopian and Eritrean governments⁴. Earlier on, it had already been suggested that one of the reasons for the Canadian government being very late in officially addressing the atrocities in the ongoing Tigray war, might be related to the country's mining interests in Tigray^{5,6}.

Here we contextualise Tigray's gold and base metal resources, and present a map of active and applied mineral exploration and mining licenses in Tigray. The largest exploration license areas are concessions of Canadian companies, followed by the U.S. and the United Kingdom.

1. Gold and other metallic mineral occurrences

Notwithstanding the legendary story of Queen Sheba's gold in the ancient times, the first recorded mention of gold production in Tigray came from the 17th C. Portuguese traveller Barradas². The first compilation of the mineral resources (including gold) of Ethiopia has been done by Danilo Jelenc in the 1960s⁷. Solomon Tadesse, et al. ⁸ did a more comprehensive compilation of the mineral occurrences of Ethiopia, i.e., indications of mineralisation containing gold and other metallic minerals such as base metals - copper, zinc, lead, etc., producing a quantitative and spatially relevant gold and other metallic mineral occurrences map of Ethiopia. This compilation on mineral occurrences holds a very comprehensive record of the known metallic mineral occurrences (including gold) in Ethiopia, and the Tigray region is very well covered in it. Their maps show the locations of these occurrences and the detailed information is given in extensive tables.

These occurrences closely correspond to the spatial extent of the Precambrian basement rocks in Tigray. Most metallic occurrences are in Northwestern and Central Tigray, with some minor occurrences in eastern and southwestern Tigray, where most of the basement rocks are exposed. For lay people: think about the low-lying, rolling hills exposed along the lower Giba, Weri'i and Mereb Rivers, in lower Tembien, Abergele, Hawzen – Nebelet – Mai Kinetel – Edaga Arbi, and the localities north and west of Shire (such as Adiyabo), as well as in the deep gorges of Irob in eastern Tigray. In Western Tigray, there is little exposure of the basement except close to the Tekeze River banks.

2. Gold exploration and mining concessions

In Tigray, artisanal mining of placer gold occurs particularly in the lowlands of Western, Northwestern and Central Tigray where the metallic mineral rich Precambrian basement rocks are widely exposed^{1,9}. A joint trade chain of gold and incense (*Boswellia papyrifera*), even myrrh (*Commiphora myrrha*) from Tigray towards the Mediterranean around the turn of the common era has been reported, allowing to give credit to the biblical story of the three Kings who supposedly travelled from Tigray to the Holy Land, bringing gold, incense and myrrh in honour of the birth of Jesus^{10,11}. Over the more recent centuries, Tigray's rural youth have migrated in the off-season to lowlands and gorges such as the largely uninhabited Wer'i river valley, to search for placer gold, washed out from the weathered gold-containing quartz veins within the meta-sediments and meta-volcanics². Apart from artisanal mining of these placer gold deposits which have been exploited for generations, there has only been one active primary gold mine in Tigray: the Meli gold mine run by the Ezana Mining Development P.L.C. based in Tigray^{12,13}, in joint venture with a Canadian company (Sun Peak Metals Corp.), which has also other active exploration licenses in Northwestern Tigray³.

The Ethiopian Mining Cadastre Map currently developed by the Ministry of Mines and Petroleum of Ethiopia¹⁴ allows locating the currently active mineral exploration licenses, as well as applications for mineral exploration in Ethiopia including in Tigray. This cadastre map project at the Ministry of Mines is a work in progress and it was anticipated to be updated regularly. Most mineral exploration companies apply to explore gold and base metals at the same time as the mineral deposits containing these metals occur in close association in many cases within the Precambrian basement rocks. The map shows the areas for which there are exploration licenses for gold; gold and base metals; copper, gold and base metals; base

metals; and precious metals. All these licenses look for gold or other precious metals.

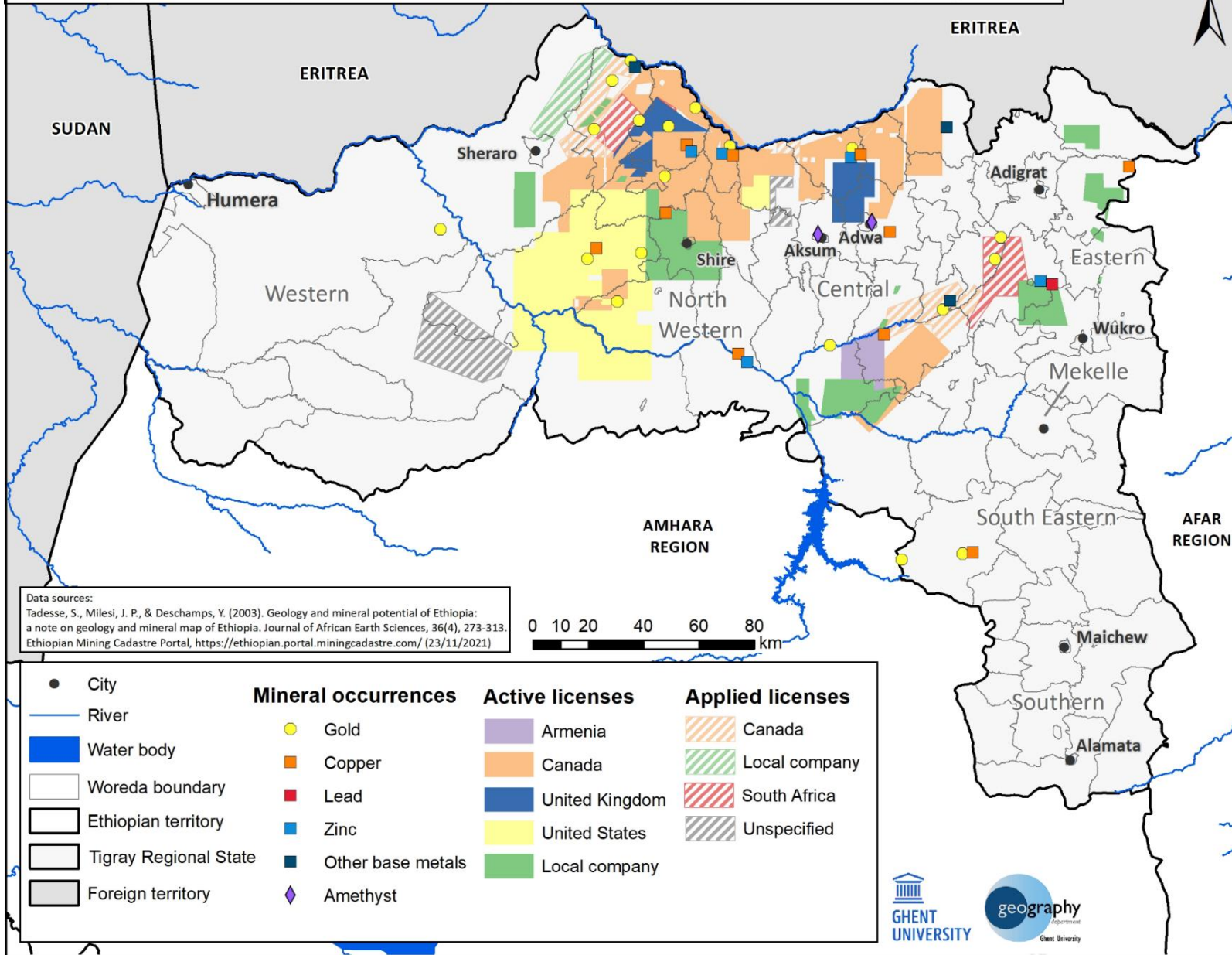
Among the numerous exploration concessions, the mining cadastre¹⁴ indicates a large concession spanning the Tekeze river in the Northwestern Zone of Tigray, for which an exploration license would be held by the Chinese Donia Mining P.L.C.; however, according to most recent information¹⁵, the exploration concession was given to the U.S. company Newmont Exploration Pty Ltd. at a later date – area indicated in yellow on the map. The largest exploration license areas are concessions of Canadian companies, followed by the U.S. and the United Kingdom.

3. Gold and the Tigray war

We assume that in the ongoing Tigray war, the mineral resources (particularly gold) potential of Tigray has been an afterthought for the Ethiopian government and its allies rather than a cause of conflict – by November 2020 such insight which requires a serious geological and economic analysis has not been part of the mainstream discussion in the Ethiopian political corridors. Rather, the dominant narrative in these circles has been that Tigray is barren and economically worthless.

On the other hand, it has been suggested that one of the reasons for the Canadian government being very late in officially addressing the atrocities in the ongoing Tigray war, might be related to the country's mining interests in Tigray^{5,6}. Yet, the perspective from the mining companies (such as the Canadian companies) is that there is a huge unexplored mineral frontier in Tigray and they do not want to lose the mineral exploration rights they have already secured in this part of the world. It is safe to assume that the Canadian companies want this conflict to be resolved in such a way that their exploration (and eventually mining) rights are secured.

Active and Applied Mineral Exploration and/or Mining Licenses of Foreign Companies in the Tigray Regional State



Map

Gold and base metal potential; exploration concessions of foreign companies in Tigray.

Data sources:

Mineral potential: Solomon Tadesse et al. (2003); mineral exploration: Altau Resources (2019); Ministry of Mines and Petroleum of Ethiopia (2019)

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