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Armed conflict has degraded Tigray's forest resources

11 November, 2022 • Mistir Sew



War in Tigray has destroyed decades-long vegetation restoration efforts.

When the Ethiopian and Eritrean defense forces, alongside Amhara regional forces, invaded Tigray in November 2020, the aftermath **resulted** in one of the world's worst humanitarian crises.

One overlooked element of the destruction, the war has **degraded** the region's forest resources on a massive scale. Shelling from heavy artillery has brought about the destruction of forests and other natural resource bases throughout Tigray. In addition, all nursery types and a forest seed centers were plundered and destroyed by the invading forces.

According to the Tigray Development Association's (TDA) 2022 report, owing to the war, only 4.5 million seedlings have been planted in Tigray so far in 2022.

The TDA also reports that clean energy sources such as electricity lines that connect Tigray have been purposely curtailed by federal authorities, 80,000 home solar systems with a capacity of 80 to 150 watts were pillaged, and 3,500 tons of biogases have been burned by the invaders.

As a result, Tigrayans are **forced** to use firewood from nearby exclosures and natural forests despite the fact that local bylaws restrict the cutting of trees from such forest resources.



Firewood marketing and charcoal making; Tigray, Ethiopia

The energy crisis in Tigray has put **pressure** on trees and shrubs, causing vegetation decline to become visible. If these trends continue, the ability of forest ecosystems to mitigate climate change and provide basic needs such as food, water, timber, and fuelwood will diminish.

Past destruction

Tigray is an arid and semi-arid region located in northern Ethiopia. In this moisture-stressed environment, agriculture constitutes the backbone of the region's economy and workforce.

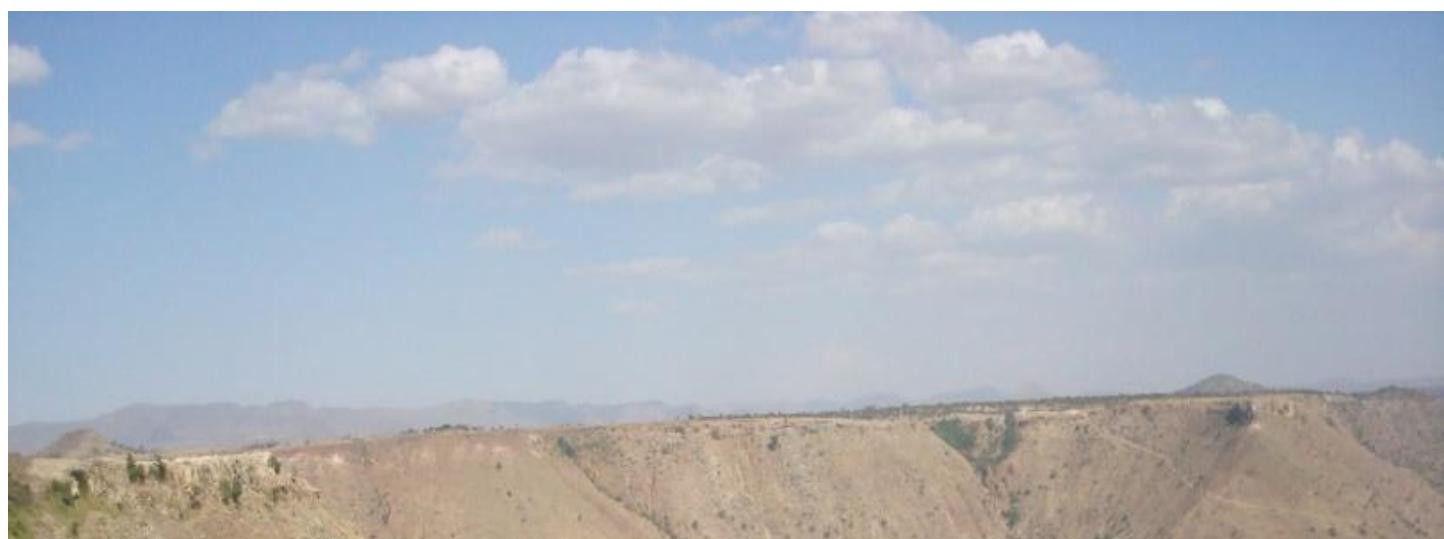
Over the years, agriculture in Tigray has been **impacted** by various forms of natural hazards, **including** droughts and flooding, alongside manmade disasters caused by armed conflict.

In the 1970s and 80s, Tigray was plagued by armed conflicts and recurrent droughts which led to widespread land degradation and unsustainable natural resource management (Fig 2). To this day, these degraded farmlands **constrain** agricultural production and labor productivity.

In addition, as Tigray's vegetation cover was less than three percent, fuelwood for energy and herbaceous biomass for animal feed and bee forage were negatively affected. Forest use for human consumption, such as for farm equipment and construction material, was insufficient. Furthermore, in the 1980s, alternative clean energy technologies that help to limit biomass demand for cooking were also lacking.

Owing to limited soil mulch and vegetation cover, intensive downpours have resulted in high levels of surface runoff and low water infiltration capacity.

As a result, severe soil erosion rates **ranging** from 19 to 29 tons per hectare (ha) have occurred, causing the formation of wide and deep gullies. Low crop productivity appeared to be **less than** one ton per ha in the degraded farmlands, leading rising poverty levels.



Typical characteristics of Tigray's degraded land in the 1980s



Restoration period

Over the years, the federal government of Ethiopia, the government of Tigray, and non-governmental organizations (NGOs) have made a concerted effort to redress the interlinked problems of land degradation.

Conservation-based agricultural development policies, community bylaws, and high political and community engagement have contributed to the effective **implementation** of degraded land restoration programs in Tigray.

Ranging from twenty to forty days every year, a massive community free labor campaign for soil and water conservation works has been mobilized during the last three decades.

According to a **2020** report by the Tigray bureau of agriculture and natural resources, about 30 percent of the total degraded lands had been treated with various types of soil and water conservation structures, leading to livelihoods and environmental improvements.

In addition, about 302,719 ha of degraded communal lands had been restored through area exclosures and around 196,416 ha of land was developed through plantation programs. In addition, more than 1,083 forest guards were mobilized to protect 260,720 ha of natural forests and 288,156 ha of state forests from human and animal interference.

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Aimed at rapid forest restoration and re-greening, the government, NGOs, and private companies have established 237 government nurseries, 71 community nurseries, and more than 5,000 private nurseries designed to recover forest resources.

These nurseries had been producing and distributing 100 to 120 million quality indigenous and exotic tree seedlings every year. A total of 459,700,000 tree seedlings were planted from 2016 to 2020, with a 56 percent (257,432,000) survival rate, covering 237,750 ha of land.

For swift forest restoration, a seed center was also established in Mekelle with the mandate to collect, certify, and deliver quality seeds to various nursery sites in Tigray.

Through these concerted efforts, vegetation cover in Tigray increased from 3 to 16.8 percent, soil erosion rates decreased by greater than 50 percent (29 to 14 ton per ha) over a 30-year period, and groundwater tables enhanced significantly. For example, a case study conducted in Abraha We Atsbaha revealed that the average water depths of the shallow wells had increased from three to fifteen meters.

Moreover, crop productivity has **increased** from less than 1 to 1.9 tons per ha, thereby reducing the poverty level from 48 to 29 percent over the last thirty years.

These combined efforts had turned Tigray into an environmental success story. As a result, Tigray was **recognized** at the 2012 UN Conference on Sustainable Development for its tireless efforts to devise innovative hunger solutions.

Tigray was also a gold medal winner at the **World Future Council** in 2017 for best policy in combating desertification and land degradation.



Once degraded landscapes of Tigray after rehabilitation



Sustainable forestry

As Tigrayans lack other energy sources for cooking, a sustainable harvest of fuel wood is required to ensure the forest's long-term survival.

Sustainable use of forest resources should include the following actions:

1. Use fuel wood from trees that have fast regrowth ability from privately and community owned forest resources, such as *Eucalyptus*, *acacia saligna*, and *ficus*.
2. Harvest fuelwood through pruning from multi-stemmed trees, such as *acacia etbaica*.
3. Use available invasive tree species, such as *prosopis juliflora* and *lantana camara*, for charcoal preparation and firewood collection.
4. Introduce new and maintain available clean energy sources such as home solar systems, biogas, and improved cooking biomass stoves.
5. As ample seedlings cannot be raised for this planting season, people are advised to use vegetative propagation techniques through branch cutting and plant multipurpose trees in degraded landscapes, such as *ficus thonningii*.
6. A massive awareness campaign through printed and local media is required, as other communication and forestry extension packages such as on job training, field visits, and experience sharing, internet-based monitoring, evaluation, and backstopping techniques are currently non-existent in Tigray.
7. Forest protection using scouts and wise management is necessary to sustainably utilize the wood collected from exclosures and natural forests.
8. Strong commitment of government, local administration, and the community in general is needed to save and protect the forest resources of Tigray.

International support

The **siege** being imposed on Tigray by the Ethiopian government and its allies has now been ongoing for more than six hundred days. The degradation of forests is among the humanitarian crises caused by this inhumane tactic.

Tigray's government and foreign donors must include the region's forestry sector in any future recovery and development plans. Significant funds are needed to restore the degraded environment.

Reversing the trend of deforestation and forest degradation requires institutional restoration. Pillaged forest extension systems, nursery sites, seed centers, and clean energy sources such as electricity, home solar systems, and biogas should be restored in Tigray.

External actors must put pressure on the Ethiopian government and its allies to end the blockade and siege, and restore social services in Tigray, including electricity and forest institutions. They should also allocate restoration funds to reverse the forest degradation in Tigray caused by war.

Pressing action is required to rehabilitate degraded land and turn Tigray into a success story.

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5 COMMENTS

Mr. Mussie G/Egziabher

12 April, 2023 at 4:40 pm

Important report that show one of the sensitive issues of life and society. Further more, in the last two years of war in Tigray, these issues were seen practically but severely. However, I would like to suggest a practical engagement to recover the deforested areas in the region. If there is any registered or intended to be registered as an interested group to run across this issue, I would like to be one of their members. Because, Environment is every thing to human life in particular and to all living things in general. Thank you for your a nice research and keep it up. I will use it as an input for my practice on the ground.

[Reply](#)**Awale**

20 November, 2022 at 1:03 pm

Too bad. I think the first causality of war is not only the the truth and wasted human lives but also the damages done on environment that sustains societies. This is even more so in sensive environs conditions that are susceptible to severe and periodic draughts and other vagaries of the nature. In a rare a achievement over twenty-seven in power by ERDF regime, this one area it got right. It has put in place a commendable environmental policy which curbed deforestation and other anthropogenic environmental damages. As far as I'm concerned . this policy helped improvement against the rapid deforestation. desertification and soil erosion impacts in the Somali Region, especially in the regions bordering with chaotic and conflict-ridden Somalia that depends on the use of an extensive illegal charcoal exports from Ethiopian side. Except endless pho-ops where Abiye himself these days touts few thousand plants in urban area as an environ success. I'm not sure if his regime still committed as much or had real and coherent policy for it.

[Reply](#)**Awale**

19 November, 2022 at 6:10 am

I was trying to throw in my two cents in the last few days but I didn't get a chance to do so. This is an interesting field for me in terms of an experience, an early upbringing as rural background kid , in terms of trade as an agronomist and then witnessing later in life the destruction of the environ and seeing the differences between now and then.

My rudimentary interest in political commentaries and related issues are secondary interest and casual , which necessitated later by societal circumstances cum the activism influenced by progressive movement of students/ teachers/ in the 1970s. Envitanmental degradation is real in Ethiopia and it is an impending catastrophes. It is caused mainly by vagaries of nature but also they are

exasperated by anthropogenic factors such aimless wars, overpopulation pressure . bad politics , socieral ignorance, human greed and so on. If given a due credit to any past regimes when it comes to environ issues in Ethiopia, the credit goes to the the EPRDF regime. Since they came to power in the 1990s, dessetfocation and wanton destruction of fauna and flora in the semi-arid regions, especially in the Somali region like are mitigated if not improved considerably , especially those areas bordering with chaotic Somalia proper, where the commerce of the illegal charcoal and wanton destruction of environ is vey common. This positive policy was perhaps was due to the lessons drawn by the TPLF group from past environmental state degradation and abuses in the North regions and particulary its home turf. I heard Abity himself infatuation with this idea by touting few hundred plants thst periodically and haphazardly planted in urban areas but that won't cut unless he formulates and emphases on real evirommetal protection policies of the existing green vegetation in the vulnerable rural areas and regions.

[Reply](#)

baseten

16 November, 2022 at 1:31 am

War in Tigray has destroyed decades-long vegetation restoration efforts not because Tigray was invaded, but because its regional elected government and its population decided to wage war all around. If you must speak on this, speak the truth and be sincere. This lie you have written, that Tigray was invaded, is more gasoline on the fire that's burning down the vegetation you claim to care about. The moment Tigray decided to respond militarily, counter-insurgency measure became justified, and so did invitation and participation of EDF to support the same ENDF that TPLF intentionally crippled.

Had TPLF decided to hand itself over at November 1st, 2020, how would have this played out? Unless you are willing to argue this level of destruction would have ensued anyway (if so write your evidence based analysis, which would be productive) then covering up that fact will not solve any problems, let alone deforestation problems. Quite to the contrary. It is lies, wilful ignorance, and omissions that has put Tigray in this situation to start with, and can get worse.

Discuss why Tigray has once again has become the center of war. At least during the Derg era and this time around, TPLF plays a key role. Back then

TPLF brought sustained military campaigns to Tigray by stating an unnecessary war over misguided and delinquent worldview. We can only wonder if Derg would have stayed that long had it not been for efforts and resources being mobilized to defend Ethiopia's territorial integrity. And yes, TPLF started out playing the independence card.

My god. Let's not even start with those 27 years. In any case, Ethiopians are once again left to fight battles both with the federal government and TPLF, which, one can only argue are child and parent.

Parts of your text can serve as a sort of documentation and overview deforestation problem as clearly exasperated by the war (again). But best leave it as that.

[Reply](#)



Jan Nyssen

11 November, 2022 at 1:19 pm

See also this detailed report by the Conflict and Environment Observatory, using satellite imagery:

The war in Tigray is undermining its environmental recovery

<https://ceobs.org/the-war-in-tigray-is-undermining-its-environmental-recovery/>

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