



Climate change and local identity extinction

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Background

Climate change is said to become a new disaster for human civilization.¹ The climate change impact is multifaceted. A number of islands will drown due to the increase of the sea water level.² Drought will occur in many countries.^{3,4} The number of infectious diseases will increase due to wide spread increase of disease vectors^{5,6} along with the increase of the number of non-transmitted diseases because of heat stress.^{7,8} The decrease of the tropical forest width causes an increase of the number of diseases leading to respiratory problems,⁹ and there will be diseases related to eyesight.¹⁰

Certainly, it must be acknowledged that the abovementioned impacts are not caused by climate change as single factor only. The spread of diseases, for example, is influenced not only by climate change but also by human mobility and the vulnerability of populations. Furthermore, climate change can be viewed not just as a cause but also as a consequence of disrupted diversity, leading to damage to the Earth's ecosystems on a broader scale.¹¹ In this sense, this initial report discusses an impact that rarely receives attention, namely the potential loss of local traditions among ethnic groups living in unique environments due to biodiversity loss.

The WHO estimated that around 80 percent of the developing countries in the world still rely on traditional plants for health treatment and curing diseases.¹² For a long time, in many countries, including Indonesia, there have been

local ethnic people groups that have taken advantage of their surrounding environment for a variety of purposes, including for the treatment and protection of their health. Local wisdom which takes advantage of local plants becomes the tradition and identity attached to those ethnic groups. The practice of using plants for health and treatment is not through usual traditional knowledge; instead, it is attached to the world view and the belief system of every ethnic group¹³ which has been transmitted from one generation to the next.¹⁴ Because it is part of the local belief system that has been passed down through the years,¹⁵ every ethnic member has some kind of "spiritual connection" even with the plants surrounding them.¹⁶

Although the loss of biodiversity including local plants has been known to occur for a long time,¹⁷ climate change has been proven to significantly accelerate this process.^{18,19} Consequently, what is lost is not just civilization's physical structure but also the local wisdom as well as the unique identity of those ethnic groups.

Current Research

We are currently conducting research in two ethnic groups in Indonesia living in North Sumatra Province. The first ethnic group is the Mandailing peoples. They live in the southern part of North Sumatra Province mainly in an area that is full of trees and natural forests. This ethnic group has practiced using local plants to continue the tradition of warming postpartum

mothers,²⁰ and in East Asia, it is known as the tradition of "doing the month."^{21,22} This tradition, called *marsidudu*, has taken place for many generations. The women of the ethnic group usually apply *marsidudu* for a month by burning wood for fire which is then used to warm up the body of a mother and to bathe the postpartum mothers with warm water that has been added with spices containing local plants. *Marsidudu* is carried out because there is an assumption that the body of a postpartum mother is in a cold condition so that she needs heat intervention from outside her body. It is believed that by providing heat through fire and warm water, the postpartum mothers will recover faster and their health in the future will be better. One informant from this study stated that despite having given birth four times, she still felt healthy and refreshed after childbirth. In an interview segment, she explained,

Typically, after giving birth, as far as I know, a mother would feel body aches. That's what usually happens. But in my experience, there were no aches like that. In all four childbirths, I always did *marsidudu*. So, there were no body aches like that because I have compared it with others who have given birth and did not do *marsidudu*. They describe having body aches and being easily affected by "wind" because, after giving birth, the body is sensitive.

Unfortunately, this tradition is endangered to become extinct due to the difficulties of the mothers to obtain wood and local plants. According to several informants, in the past those plants could easily be found around the yard of a house. However, recently those plants have become more and more rare. In order to obtain them, they have to find those plants and wood in a part of the forest further away.

The tradition of *marsidudu* for many postpartum mothers becomes a vital part of postpartum care. The belief in the benefits of *marsidudu* was revealed by the informants who stated that they learn the tradition from

their mothers, and it is considered as a must to be conducted because they are the members of Mandailing ethnic group and is part of the cultural process showing their identity. Therefore, behind the practice of *marsidudu* by the Mandailing tribe, there is an effort to preserve identity, as carried out by other tribes in different places.²³⁻²⁵

The other ethnic group that we are observing currently is the Nias people who live in Nias Island, also located in North Sumatra Province, Indonesia. The separation of the island from the mainland of the Sumatra Island causes the ancestors of this ethnic group to develop local wisdom when their children suffer from fever.²⁶ There is a belief that a child can be easily attacked by a disease due to being exposed to invisible spirits. What is unique from this ethnic group's belief is that on the one hand they believe the causes of some diseases are the spirits, but on the other hand they also believe that nature provides a cure for those diseases. In the perspective of this ethnic group, nature provides goodness by providing beneficial plants to protect humans. These plants are boiled, given to children so they drink them, or used to expel spirits as the cause of the diseases. The increase in government health facility distribution and an increase in health worker numbers cannot erase the perspective of the local community that there are some diseases that cannot be cured by modern medicine treatment. The traditional treatment that has been taught by their ancestors is trusted and considered as a gift from God.

Recently, these types of medicinal plants have become scarcer. Several informants feel it is hard to obtain those plants as they have to go further and deeper into the wild of the island. The initial research information from two different tribes above indicates that something is happening to the local plants they have been using. It must be acknowledged that there is currently simultaneous and massive environmental damage occurring in Indonesia.²⁷ However, previous researchers showed the increasing scarcity of plants essential to the local community suggests tangible impacts of

climate change.^{28–30} So, considering that there is no significant forestry or mining activity in these two locations, the scarcity of local plants is likely indicative of climate change, upon which we should reflect.

These two ethnic groups, perhaps, just represent other ethnic groups globally that are experiencing environmental difficulties.³¹ In many parts of the world, not only in Indonesia, local plants are identified as part of the narrative of the local identity they have. The formation process of a narrative takes a considerable amount of time and involves social processes unlikely to be repeated. The endangered existence of these plants also threatens the loss of local wisdom related to the identity of those ethnic groups.

Conclusion and recommendations

This report may still be considered a preliminary analysis that needs further exploration. However, we must recognize the vast potential threat posed by climate change. Considering that tribes practicing traditional medicine are inseparable from their identity, the loss of these traditions indirectly erases their uniqueness. They are also in a precarious situation because, given the often inadequate access to healthcare services, traditional medicine is actually the best, and perhaps the only, option they have to maintain their health.

The two ethnic groups that were the case examples in this writing also show the unequal impact from climate change suffered around the world. In the Western world, efforts to save local plants have been conducted by identifying the benefits of these medical plants, which then leads to conservation and intensification policy.¹⁹ The same condition cannot be applied in remote areas and often does not become the public concern of a country. These ethnic groups have been in a marginal position for a long time, even when they are in the threatening condition of losing their identity because of suffering from this climate change impact.

We attempted to give attention to the ethnic groups located far from the economic and

political growth centers so that they receive more equitable attention. We suggest that the United Nations include them in the list of the ethnic groups that need specific attention to protect them and other marginalized ethnic groups whose health and vitality depends on their local plant's wisdom.

It must be acknowledged that health services with modern medicine are the best option. However, we must carefully consider this transformation process as these are tribes that have practiced traditional medicine for centuries. Mitigation in their lives should already be initiated by all parties so these tribes remain healthy, and at the same time, their traditional knowledge is not eroded. Especially because the spiritual connection that has existed all this time has bound them to the belief that the plants they use are not just for their health but also a gift from God to them. We are dealing with the loss of the wisdom of “spiritual connection” between humans and plants which has been built from one generation to another.

We need to do not only local rescue but also global rescue. Research is required to use the perspective of anthropology so that the relationship between humans and plants can reveal important narrations to become guidelines for the decision makers in the conservation and health fields. At the local level, plant conservation needs to be intensified but in its own habitat so that the nexus between humans and plants is not interrupted. Local inhabitants need to learn to build their own local wisdom by educating them to rescue important plants for health-promoting use.

One of the institutions capable of mediating both adaptation and mitigation at the local level is the Christian church.³² In the context of Indonesia, churches can convey unique and locally relevant messages to members in various communities, as exemplified in our previous research.³³

References

1. Zandalinas SI, Fritschi FB, Mittler R. Global Warming, climate change, and environmental pollution: recipe for a multifactorial stress



- combination disaster. *Trends Plant Sci.* Elsevier Ltd. 2021;26:588–99. <https://doi.org/10.1111/nph.17232>
2. United Nations. Sink or swim: can island states survive the climate crisis? *Climate Environ.* 2021.
 3. Christidis N, Stott PA. The influence of anthropogenic climate change on wet and dry summers in Europe. *Sci Bull (Beijing)*. 2021 Apr 30;66(8):813–23. <https://doi.org/10.1016/j.scib.2021.01.020>
 4. Fontes CG, Dawson TE, Jardine K, McDowell N, Gimenez BO, Anderegg L, et al. Dry and hot: the hydraulic consequences of a climate change-type drought for Amazonian trees. *Philosoph Transact Royal Soc B: Biol Sci.* 2018 Nov 19;373(1760). <https://doi.org/10.1098/rstb.2018.0209>
 5. Semenza JC, Suk JE. Vector-borne diseases and climate change: a European perspective. Vol 365, *FEMS Microbiology Letters*. Oxford University Press; 2018. <https://doi.org/10.1093/femsle/fnx244>
 6. Caminade C, McIntyre KM, Jones AE. Impact of recent and future climate change on vector-borne diseases. Vol 1436, *Annals NY Acad Sci.* Blackwell Publishing Inc. 2019:157–73. <https://doi.org/10.1111/nyas.13950>
 7. Parkes B, Buzan JR, Huber M. Heat stress in Africa under high intensity climate change. *Int J Biometeorol.* 2022 Aug 1;66(8):1531–45. <https://doi.org/10.1007/s00484-022-02295-1>
 8. Leyk D. Health risks and interventions in exertional heat stress. *Dtsch Arztebl Int.* 2019 Aug 5. <https://doi.org/10.3238/arztebl.2019.0537>
 9. D'Amato G, Vitale C, Rosario N, Neto HJC, Chong-Silva DC, Mendonça F, et al. Climate change, allergy and asthma, and the role of tropical forests. Vol 10, *World Allergy Org J.* BioMed Central Ltd; 2017. <https://doi.org/10.1186/s40413-017-0142-7>
 10. Echevarría-Lucas L, Senciales-González JM, Medialdea-Hurtado ME, Rodrigo-Comino J. Impact of climate change on eye diseases and associated economical costs. Vol 18, *Int J Environ Res Public Health.* MDPI; 2021. <https://doi.org/10.3390/ijerph18137197>
 11. Hooper DU, Adair EC, Cardinale BJ, Byrnes JEK, Hungate BA, Matulich KL, et al. A global synthesis reveals biodiversity loss as a major driver of ecosystem change. *Nature.* 2012 Jun 2;486(7401):105–8. <https://doi.org/10.1038/nature11118>
 12. Dapar MLG, Alejandro GJD, Meve U, Liede-Schumann S. Quantitative ethnopharmacological documentation and molecular confirmation of medicinal plants used by the Manobo tribe of Agusan del Sur, Philippines. *J Ethnobiol Ethnomed.* 2020 Mar 5;16(1). <https://doi.org/10.1186/s13002-020-00363-7>
 13. Scheper-Hughes N, Lock MM. The Mindful Body: a prolegomenon to future work in medical anthropology. *Med Anthropol Q.* 1987 Mar;1(1):6–41. <https://doi.org/10.1525/maq.1987.1.1.02a00020>
 14. Cruz García GS. The mother — child nexus. Knowledge and valuation of wild food plants in Wayanad, Western Ghats, India. *J Ethnobiol Ethnomed.* 2006 Sep 12;2. <https://doi.org/10.1186/1746-4269-2-39>
 15. Santoro FR, Richeri M, Ladio AH. Factors affecting local plant knowledge in isolated communities from Patagonian steppe: metacommunity theory is revealed as a methodological approach. *PLoS One.* 2022 Sep 1;17(9 September). <https://doi.org/10.1371/journal.pone.0274481>
 16. Delormier T, Horn-Miller K, McComber AM, Marquis K. Reclaiming food security in the Mohawk community of Kahnawà:ke through Haudenosaunee responsibilities. *Matern Child Nutr.* 2017 Nov 1;13. <https://doi.org/10.1111/mcn.12556>
 17. Giam X, Bradshaw CJA, Tan HTW, Sodhi NS. Future habitat loss and the conservation of plant biodiversity. *Biol Conserv.* 2010 Jul;143(7):1594–602. <https://doi.org/10.1016/j.biocon.2010.04.019>
 18. Zandalinas SI, Sengupta S, Fritschi FB, Azad RK, Nechushtai R, Mittler R. The impact of multifactorial stress combination on plant growth and survival. *New Phytologist.* 2021 May 1;230(3):1034–48. <https://doi.org/10.1111/nph.17232>
 19. Applequist WL, Brinckmann JA, Cunningham AB, Hart RE, Heinrich M, Katerere DR, et al. Scientists warning on climate change and medicinal plants. Vol 86, *Planta Medica.* Georg



- Thieme Verlag; 2020. p. 10–18. <https://doi.org/10.1055/a-1041-3406>
20. Lubis RF. Marsidudu pilihan perawatan pasca melahirkan bagi wanita etnis Mandailing di kecamatan Medan Amplas (*Marsidudu postpartum care choices for Mandailing ethnic women in Medan Amplas Subdistrict*) [Medan]: Universitas Sumatera Utara; 2023
 21. Liu YQ, Petrini M, Maloni JA. “Doing the month”: postpartum practices in Chinese women. *Nurs Health Sci*. 2015 Mar;17(1):5–14. <https://doi.org/10.1111/nhs.12146>
 22. Ding G, Tian Y, Yu J, Vinturache A. Cultural postpartum practices of ‘doing the month’ in China. *Perspect Public Health*. 2018 May 1;138(3):147–9. <https://doi.org/10.1177/1757913918763285>
 23. Bazzano AN, Stolor JA, Duggal R, Oberhelman RA, Var C. Warming the postpartum body as a form of postnatal care: an ethnographic study of medical injections and traditional health practices in Cambodia. *PLoS One*. 2020 Feb 1;15(2). <https://doi.org/10.1371/journal.pone.0228529>
 24. Muhammad Wafiuddin Wa’ie IR, Koh Soo Quee D, H. Sharbini S, Mohd Noor SH, Kisut R, Tuah NA, et al. Practice of postpartum warming among mothers in Brunei. *J Transcult Nursing*. 2020 Nov 21;31(6):576–81. <https://doi.org/10.1177/1043659620914713>
 25. Yeh YC, St John W, Venturato L. Doing the month in a Taiwanese postpartum nursing center: an ethnographic study. *Nurs Health Sci*. 2014 Sep;16(3):343–51. <https://doi.org/10.1111/nhs.12110>
 26. Zebua CM. Tesafo eksistensi roh dalam masalah kesehatah masyarakat, sebuah studi kasus di Pulau Nias (*The essence of spiritual existence in public health issues, a case study in Nias Island*). [Medan]: Universitas Sumatera Utara; 2023.
 27. Austin KG, Schwantes A, Gu Y, Kasibhatla PS. What causes deforestation in Indonesia? *Environ Res Letters*. 2019 Feb 1;14(2):024007. <https://doi.org/10.1088/1748-9326/aaf6db>
 28. Applequist WL, Brinckmann JA, Cunningham AB, Hart RE, Heinrich M, Katerere DR, et al. Scientists’ warning on climate change and medicinal plants. *Planta Med*. 2020 Jan 15;86(01):10–8. <https://doi.org/10.1055/a-1041-3406>
 29. Groner VP, Nicholas O, Mabhaudhi T, Slotow R, Akçakaya HR, Mace GM, et al. Climate change, land cover change, and overharvesting threaten a widely used medicinal plant in Africa. *Ecol Apps*. 2022 Jun 21;32(4). <https://doi.org/10.1002/eap.2545>
 30. Shrestha UB, Lamsal P, Ghimire SK, Shrestha BB, Dhakal S, Shrestha S, et al. Climate change-induced distributional change of medicinal and aromatic plants in the Nepal Himalaya. *Ecol Evol*. 2022 Aug 15;12(8). <https://doi.org/10.1002/ece3.9204>
 31. Pearson J, Jackson G, McNamara KE. Climate-driven losses to knowledge systems and cultural heritage: a literature review exploring the impacts on Indigenous and local cultures. Vol 10, *Anthropo Rev*. SAGE Publications Inc.; 2023. p. 343–66. <https://doi.org/10.1177/20530196211005482>
 32. Hospedales J. Caring for the Earth for better health and well-being of all: addressing climate change as a planetary health emergency [Internet]. *Christ J Global Health*. 2021;8(1). <https://doi.org/10.15566/cjgh.v8i1.575>
 33. Zaluchu F. Engaging the local church to tackle stunting in Indonesia : a case study in Nias Island. *Christ J Global Health*. 2022;9(2). <https://doi.org/10.15566/cjgh.v9i2.649>



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