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# Transnational environmental crime threatens sustainable development

Transnational environmental crime has become the largest financial driver of social conflict, with severe implications for peace and security. Sustainable-development frameworks need to overtly recognize and mitigate the risks posed by transnational environmental crime to environmental security.

Meredith L. Gore, Patrick Braszak, James Brown, Phillip Cassey, Rosaleen Duffy, Judith Fisher, Jessica Graham, Ronit Justo-Hanani, Andrea E. Kirkwood, Elizabeth Lunstrum, Catherine Machalaba, Francis Massé, Maria Manguiat, Delon Omrow, Peter Stoett, Tanya Wyatt and Rob White

Linkages between environmental security and transnational environmental crime (TEC) have serious implications for civil society, governments and international organizations in pursuit of the 2030 United Nations Sustainable Development Goals. TEC generates extreme costs to ecosystems, sustainable development and security, undermining development prospects for nearly two billion people — 535 million of whom are children<sup>1</sup> — and causing the forcible displacement of an estimated 65 million people<sup>2</sup>. Fragility, conflict and violence are critical challenges that threaten efforts to end extreme poverty. The proportion of the extreme poor living in conflict-afflicted countries has been projected to rise by more than 60% by 2030<sup>3</sup>. Often deeply entrenched in state and non-state armed forces, and the corporate and political elite, TEC is directly stimulated by continued or renewed conflict in many of the world's most deadly contexts. If not addressed in sustainable-development frameworks, these serious threats will undermine development in decades to come.

Healthy ecosystems with intact biodiversity and the ability of human communities to sustainably access natural resources embody the concept of environmental security. TEC refers to criminal natural-resource-related activities that cross national borders and harm the environment, such as wildlife trafficking; illegal fishing; electronic-waste dumping; water theft; illicit markets in ozone-depleting substances; illegal logging and mining; and other acts.

In some instances, TEC is highly structured and perpetrated by organized crime syndicates, corporations and complicit governments; in other cases, the persons involved are subsistence offenders (for example, using trees for fuel) and others are part of informal networks of varying size. The estimated global economic value of TEC is between US\$91 and \$259 billion per year<sup>4</sup>; it accounts for 64% of illicit and organized crime finance, or between US\$22 billion and \$34 billion of the criminalized economy in fragile states in or near conflict areas<sup>5</sup>.

## Mitigating risks from TEC

TEC and environmental security are not problems constrained to lower or middle-income countries<sup>5</sup>. As a serious and often systematized category of crime, TEC can be a cause of environmental and health insecurity, for example when illegal logging serves as a vector for biological invasion of insects, when wildlife trafficking facilitates the spread of zoonotic pathogens or when electronic waste is illegally dumped among marginalized communities<sup>6,7</sup>. Drug trafficking (for example, cocaine) has become a key accelerant of

deforestation. 'Narco-deforestation' is the process by which forests are cut for covert roads and landing strips, large quantities of cash and weapons are also stored in forests and ranchers are narco-capitalized<sup>8</sup>. Natural resources that local people are highly dependent on for survival, such as charcoal for cooking, drinking water at wells, agriculture and livestock and docking fees for fishers, can be illegally taxed<sup>9</sup>. Responses to TEC can be grounded in militarization and/or pacification logics. Concomitantly enveloped in the overarching framework of security<sup>10</sup>, these approaches interact with sustainable-development logics and reflect tensions between economy and ecology. Feedbacks emerging from these types of responses can yield unintended ecological and social outcomes compared to other risk-response frameworks and provoke new forms of environmental insecurity (for example, the use of herbicides on narcotics plantations and destruction of illegal fishing vessels using explosives).

TEC negatively impacts the environment and vulnerable workers while benefitting those with power<sup>11</sup>. Individuals higher in the illicit criminal supply chain reap a massive slice of the revenue generated from TEC. Multinational corporations relying on the development of, and manufacturing from, natural resources can have legal supply chains exploited by TEC offenders when risk assessments, allocations of responsibility and traceability mechanisms are vague and underdeveloped. There are diverse consequences of environmental insecurity from TEC, for example when conservation efforts lead to economic dislocation of marginalized communities or change the opportunity structure for local people in regards to the hunting of protected wildlife species<sup>7</sup>. As climate change drives new environmental insecurities through more extreme and frequent severe weather events, opportunistic TEC may be intensified; climate-change mitigation and adaptation planning provides new opportunities for criminal exploitation including carbon fraud. In many contexts, poverty is correlated with TEC; illegally dumping electronic waste and illegal mining are often associated with impoverished regions suffering from high levels of environmental injustice. For example, illegal fishing has been posited as a cause in the rise in piracy through lost livelihoods. Losses incurred due to foreign illegal vessels off Somalia are estimated to be between US\$100 and \$300 million<sup>12</sup>.

The tangible ways TEC threatens environmental security are diverse and include facilitating the spread of invasive species and dangerous pathogens, degradation of biodiverse ecosystems, pollution of drinking water and fuelling social injustices, particularly those harming women and children<sup>13</sup>. These threats coupled with risks to human health can reinforce or worsen conditions of vulnerability that further enable opportunities for environmental crimes and have long-term consequences for ecosystems and populations that depend on them<sup>14</sup>. The convergence of environmental security and TEC poses complex problems impacting diverse societal needs.

### **Putting TEC on the agenda**

Opportunities exist to incorporate links between environmental security and TEC into policy documents and strategic plans as well as support interdisciplinary science towards building evidence for best practices<sup>15</sup>. Environmental impact assessments can include analyses of potential criminal activity and incorporate measures of anticipated or realized economic damages related to human security risks (for example, via impacts to water, food and health). The human and animal-health communities can be further engaged in discussions of mitigating TEC in the prevention and management of emerging infectious diseases, including the spillover and spread of pathogens and their vectors of health and agricultural concern. Improved collaboration between sectors can support early detection of threats and inform the identification of drivers of disease to target upstream prevention,

including through reduction of environmental crime activities. Many international conventions and multilateral agreements are already poised to support these and other coordination efforts (for example, the Basel Convention and Nagoya Protocol).

Cooperation between regional, bilateral and multilateral actors to address convergence of TEC and environmental security can yield additive benefits for environmental security and sustainable development. Responses to TEC, environmental security and development goals all require greater momentum and justifiability and can complement each other. However, cooperation and benefit sharing require that all actors coordinate data, law enforcement and other meaningful information in a timely fashion. We acknowledge a need to fill gaps in understanding across vital areas including: restorative and reparative justice; legislative reform and review; the need for ongoing adjustments to anti-TEC measures; capacity building; best practices for comparative work; impact of 'debt for nature swaps' and other governance tools on local biosecurity; and the effectiveness of anti-crime and crime-prevention strategies in the environmental domain. Corruption (for example, corporate, political, governmental and judicial) remains a pernicious threat to environmental security and TEC. Knowledge gaps remain regarding white-collar crime, organizational crime and other crimes of the powerful, as well as the ability of corporate social responsibility, economic and political sanctions or corruption reforms to advance anti-TEC progress. It is vital that governments, intergovernmental organizations, private corporations, parastatals, civil society, non-governmental organizations and other actors deliberately consider the complexities and mitigate the risks discussed above when pursuing their 2020–2030 strategic sustainable-development planning.

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## References

1. United Nations Children's Fund *Nearly a Quarter of the World's Children Live in Conflict or Disaster-stricken Countries* (9 December 2016); <https://go.nature.com/2GomtTx>
2. *Figures at a Glance* (United Nations High Commission on Refugees, 2018); <https://go.nature.com/2JSDxDo>
3. *Fragility, Conflict & Violence* (The World Bank, 2018); <https://go.nature.com/2ZeLB6w>
4. United Nations Environment Programme *The State of Knowledge of Crimes That Have Serious Impacts on the Environment* (University Printing House, 2018).
5. Symes, W. S., McGrath, F. L., Rao, M. & Carrasco, L. R. *Biol. Conserv.* **218**, 268–276 (2018).
6. Gibbs, C., Gore, M. L., McGarrell, E. F. & Rivers, L. III *Br. J. Criminol.* **50**, 124–144 (2010).
7. Gore, M. L., Lute, M. L., Ratsimbazafy, J. H. & Rajaonson, A. *PLoS ONE* **11**, e0150337 (2016).
8. McSweeney, K. et al. *Science* **343**, 489–490 (2014).
9. Monitoring Group on Somalia and Eritrea *Report of the Monitoring Group on Somalia and Eritrea Pursuant to Security Council Resolution 2244 (2015) S/2016/919* (United Nations Security Council, 2016).
10. Neocleous, M., Rigakos, G. & Wall, T. *Social. Stud.* **9**, 1–6 (2013).
11. Brashares, J. S. et al. *Science* **345**, 376–378 (2014).
12. *Illegal, Unreported and Unregulated (IUU) Fishing in the Territorial Waters of Somalia* (Adeso, 2015).
13. United Nations Office on Drugs and Crime *World Wildlife Crime Report: Trafficking in Protected Species* (United Nations, 2016).
14. United Nations Environment Programme *Global Environment Outlook – GEO-6: Healthy Planet, Healthy People* (Cambridge Univ. Press, 2019).
15. Blaustein, J., Pino, N. W., Fitz-Gibbon, K. & White, R. *Br. J. Criminol.* **58**, 767–786 (2018).

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