
The Sustainable Supply System Project

2024
SEMESTER
REPORT

Strategies for Addressing
Illegal Trade and
Trafficking Worldwide

OUR PROJECT

A Draft Treaty for International Support of Sustainable Supply Systems

The project to create a treaty for sustainable supply systems emerged out of a desire to see the world respect the importance of the natural environment in the face of ecosystem degradation and rampant deforestation. Now, more than ever before, the international community has a responsibility to protect endangered species from permanent extinction and the Earth from permanent and catastrophic climate change. Recognizing this, our team has created a treaty to reduce illegal wildlife trade and trafficking, reduce damaging enterprise, and support sustainable harvesting through the creation and maintenance of sustainable supply systems. We hope to facilitate, in our treaty, the creation of comprehensive

international sustainability standards and reliable updating procedures for these certifications in addition to robust certification and audit procedures. To ensure that the provisions of our treaty are upheld, we wish to establish port and facility inspection protocols as well as provide life insurance, training, and equipment to illegal extraction enforcement officials. Our treaty also contains provisions to ensure that benefits are targeted to local economies and that the rights of indigenous and local communities to live sustainably on the land are protected. While recognizing the difficulties associated with a project of this scope, we are driven by the ethos that to remain limited by “realism” is to concede to an untenable and ultimately immoral status quo. Faced with overwhelming odds, idealism is the only option left those who wish to secure a future absent mass destruction and extinction by legal means. It is in any case important to remember the words of the immortal Henry David Thoreau: “In the long run men hit only what they aim at. Therefore, though they should fail immediately, they had better aim at something high.”

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This report contains our team's findings related to illegal wildlife trade and trafficking. This report does not attempt to be comprehensive or definitive in its review of illegal trade reduction strategies. In order to keep the report easy to use and widely accessible, a summary of the main strategies available for addressing illegal wildlife trade and trafficking are presented in sections one through six alongside case strategies illustrating how these strategies have been implemented. For more information on specific subjects mentioned in this report, readers should refer to section nine which highlights important sources of information regarding each of the six strategy categories.

This report also aims to contribute something new to the study of illegal trade and trafficking. To this end, section seven contains reports of interviews held with key individuals working to address illegal trade and related issues. Because this report is meant to directly support the creation of a treaty on International Sustainable Supply Systems, section eight provides explicit recommendations for the creation of such a treaty based on key findings from sections one through six and important recommendations derived from section seven.

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1. ECONOMIC STRATEGIES

Poverty has been connected to illegal wildlife hunting and trafficking by a number of studies (1) and, although this relationship is complex, economic and financial mechanisms remain popular and to some degree effective because they aim to address the root causes of illegal trafficking. The Amazon region is one of the poorest in Brazil, with 9.7% of the population living in extreme poverty and 20.9% living below the poverty line (3). Many people in this region also lack access to basic healthcare and education (see Section 2). Production of goods often does not, given this context, result in higher quality of life; in the Ilhas das Onças region, to take one example, the development of the açaí industry has occurred simultaneously with the expansion of unsustainable harvesting practices cyclical poverty (3). While poverty defined purely in financial terms is insufficient to capture the full range of reasons for illegal hunting- e.g. prestige, cultural identification (2), the fact remains that poverty is inextricably linked to unsustainable practices, deforestation, and the illegal wildlife trade (4). Only where communities feel financially secure and physically safe can sustainable trade hope to flourish.

This section presents general approaches to sustainable development of natural resources as an alternative to unsustainable or illegal practices. While the strategies outlined here do not directly address illegal trade, it is important to include them in order to demonstrate that alternatives exist for responsible development, poverty reduction, and improved local sovereignty of natural resources.



Image: “Dona Procópio” by Anderson Gomes Cardoso retrieved from IBAMA (7)

INCOME-GENERATION PROGRAMS

One way to address rural poverty is by increasing cash flow to rural areas in order to disincentivize illegal trade as a means of sustenance. The relationship between income and illegal trade can also work in reverse, with sustainable trade providing income for communities to fund conservation programs (5). Projects with income-generation components have been carried out by the Amazon Cooperation Treaty Organization (ACTO), the World Bank, and the United Nations. The Amazon Basin Project, for example, pays communities in the *Terra do Meio* region of the Amazon to restore degraded land by planting seeds (8). The Bolsa Verde project, another re-forestation initiative with income-generation components, pays a dividend to households in extreme poverty who conserve natural resources (9). This project has been shown to reduce illegal deforestation by up to 22%, with project benefits greatly exceeding program costs (10).

While income-generation programs may be effective in certain contexts, this strategy assumes poverty to be the main cause of illegal trade in the area of application and is therefore limited by the degree to which this assumption is justified (2). Income-generation programs may also be limited by the financial resources available for implementation and by political problems. The Amazon Basin Project, an initiative carried out by the Amazon Cooperation Treaty Organization (ACTO) has been limited by lack of financial resources, management difficulties, lack of well-defined responsibilities between inter-state actors, and non-compliance by weaker state actors forced into non-beneficial agreements (11). The Bolsa Verde Programme was suspended between 2018 and 2022 because of lack of funds (12). Failure to consider power relations between states when creating international agreements projects may act against conservation aims by leading to unjust resource distribution and small state non-compliance (11). Failure to properly inform civil society about programs may also hamper program compliance and success (11).

In order to be successful, income generation programs should consider all factors which contribute to poverty in the target area, should ensure that benefits are targeted to low-income populations (as in the Bolsa Verde program), should consider other factors that also contribute to illegal practices in the target area, should be implemented on an equitable basis, should receive reliable and sufficient funds, and should include efforts to educate local populations and civil society about the aims of the program.

ENVIRONMENTAL DAMAGE COMPENSATION SCHEMES

Environmental damage compensation schemes aim to pay back local communities for harm done to ecosystem goods and services. Companies or institutions that damage natural resources may compensate local communities by improving health, education, or employment opportunities for communities, as in the case of oil companies in the Ecuadorian Amazon (13), or by creating new or improved biodiversity assets elsewhere, as in the case of the 2014 the Nordic Iron Ore mining project whose contract offered to offset the negative consequences of mining by conserving land outside of the mining zone (14).

By requiring environmental damage compensation schemes, in the case of states, or by voluntarily pursuing such projects, in the case of companies, institutions can demonstrate their commitment to fair practices and sustainable development. As in income-generation projects, however, the relative success of these schemes largely depends on the local context. Differences exist, for example, between implementation of damage compensation in developed welfare states like Sweden where state-owned companies have a strong relationship with local communities and developing countries such as South Africa where severe poverty and lack of trust for mining operations and industry in addition to poor communication of project goals and unclear division of responsibilities for citizen welfare between the company and municipality limit the benefits or perceived benefits of compensation schemes (15). The environmental damage compensation approach is also inherently flawed in its assumption that environmental degradation in one area can be fully recompensed by other services or by purely monetary compensation (13). Not only is this assumption human-centric, it is also dependent on the ability of decision-making individuals to account for the full costs of development operations on local and indigenous communities.

There is evidence to suggest that deliberative approaches might help to address some of these issues. By discussing trade-offs of mining or other harmful activities with the community, companies can improve social learning, improve citizen trust in company operations, improve transparency, built relationships with the community, and build on shared values to come to an agreement regarding acceptable tradeoffs (13). For local individuals, deliberation may improve outcomes

by encouraging unified demands and clearly defined levels of acceptable environmental damages - and in some cases by determining that no level of environmental degradation is acceptable (13). At the same time, if decision-making power is placed in the hands of vulnerable local communities, there is a danger that exploitation by oil companies and other extractive industries could become entrenched with negative consequences for both local populations and the world (13). In a study of environmental tradeoffs in the Ecuadorian Amazon, it was found that most local residents were amenable to making trade-offs for environmental goods and services even when they depended on the environment for sustenance (13). Environmental damage compensation schemes may therefore do more harm than good by legitimizing harmful practices and buying the right to harm the environment, an action associated with long-term and permanent damages, for short-term payments in the form of money or services that are imperfectly substitutable for the environmental goods and services depleted.



Image: “Yasuni villagers fear for way of life” by Antonia Juhasz retrieved from CNN Opinion article: “Why oil drilling in Ecuador is ‘ticking time bomb’ for planet.” After nations failed to contribute the necessary \$3.6 billion to Ecuador, President Correa scrapped a deal to keep the “oil in the soil” at Yasuni National Park (18). Even if oil companies offer compensation, sometimes there is no substitute for clean land and water, especially for indigenous communities that rely on these resources for subsistence and cultural preservation.

FINANCIAL MECHANISMS

A wide variety of financial mechanisms exist for funding conservation efforts, income-generation programs, and other initiatives aimed at protecting wildlife from harm. While exploring the full breadth of mechanisms available and their effectiveness is beyond the scope of this report, a few examples of innovative mechanisms include debt for nature, green bonds, carbon markets, and carbon credits. It is important to note the relationship between rich and poor nations that underlies many of these proposals. While getting rich countries to support conservation efforts on the part of under-developed countries may be difficult to accomplish, it is ultimately in the interests of richer countries to fund these efforts since carbon dioxide emissions from deforestation, ecosystem degradation, and climate change will cause huge costs to accrue for all nations unless conservation practices are widely embraced; only by paying low- and middle- income countries billions - in the form of grants, not debts - can high- income countries avoid paying trillions of dollars to deal with climate problems at home (16).

Many of these mechanisms are gaining in popularity, though their effectiveness remains subject to governance and degree of international commitment. Carbon markets were identified by Igrape as key to the worldwide decline in deforestation seen in the 2000s and 2010s (20) but face challenges from illegal harvesting in sequestration areas (21), greenwashing accusations aimed at firms who rely heavily on VCMs to offset emissions (21), and vulnerability to illegal activity and uncertified carbon credit sellers (22). The COP29 Conference in Baku (2024) has embraced voluntary carbon markets (VCMs) and carbon credits as a strategy for reducing emissions, though major shortcomings, including lack of consensus on verification mechanisms, in agreements suggests that the market will continue to be plagued by unprincipled actors (17). In October 2024, the United Nations International Civil Aviation Organization (ICAO) moved forward with its Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) (18).

Another recent proposal, the Tropical Forests Forever Fund, would have developed nations pay developing countries to protect forests from logging and deforestation. Money put into the fund would be repaid with interest while excess returns would be invested in forest conservation projects. This proposal, while promising, has not yet managed to convince countries to invest and has yet to clarify how to ensure that money invested in forests will be used responsibly (22).

2. SOCIAL STRATEGIES

Improving states' institutions and infrastructure is important in order to increase trust in the government, alleviate problems that drive people to hunt or trade illegally, inform people about the importance of conservation, and ensure that government programs have a strong foundation upon which to build. Recent research suggests that access to healthcare decreases rates of deforestation and improves the resilience of local communities (24).

This section presents examples of social programs that can simultaneously help improve the quality of life in rural areas and improve sustainable practices. Examples include improving health, sanitation, and access to clean water; improving and increasing education; decreasing corruption and increasing transparency in government; and creating programs to assess the extent to which development projects, including road expansion projects, impact the illegal trade.



Image: “O Preço do Progresso” by Carlos Eduardo Partika retrieved from IBAMA (7)

HEALTH, SANITATION, AND CLEAN WATER

In 2021, 40% of Brazilians lacked access to drinking water while 80% lacked access to sanitation services (25). Both lack of clean water and lack of sanitation have helped the spread of disease and the entrenchment of poverty (25). While health and sanitation may seem unrelated to illegal wildlife trade, the two are actually intimately connected. For one thing, extraction of mineral, timber, or agricultural resources whether legal or illegal may improve economic outcomes for communities while decreasing health and social outcomes (25). Rich owners who act to deforest land may offer health services, otherwise unavailable, to their workers, providing an additional incentive for workers to get involved in the illegal trade (26). Access to health services are repeatedly reported among the greatest challenges facing indigenous communities trying to live sustainably on the land (25; 26). The time and resources that people need to travel out of remote areas to access necessary health services can seriously harm people's livelihoods and can damage community leaders' activities against illegal miners and loggers (26). In this excerpt from an article by Nature Medicine titled "Health in the Amazon: Local communities protect the rainforest, but lack adequate healthcare," Francisco Assis, a nut harvester and community leader, describes what it cost him to travel from his home in São Francisco to a city that could provide him with a necessary surgery:



“ ‘I got healthy after the surgery,’ Assis says. ‘But I lost all the money I had, and I couldn’t harvest or work on my crops.’ Although his surgery was free through the public health system, Assis spent more than 20,000 reais (almost double the annual national minimum wage) on transportation and accommodation. Time away from the Amazon also affected his community work. Assis is part of a group called ‘Xingu Mais’, which reports illegal activities in the forest, such as land invasions by gold miners and loggers, to the government” (Sofia Moutinho writing for *Nature Medicine*, 2021) (26).

Photo: “Francisco Assis traveled 10 hours for medical treatment” photo by Sofia Moutinho (26). “ ‘We are here left alone and dying slowly,’ [Francisco Assis] says, ‘while the forest we preserve is giving oxygen to people all over the world’ “ (quoted in 26).

Recent studies suggest that providing healthcare can significantly reduce illegal trade. One study done in Indonesia found illegal logging to have decreased by 70% in rural Borneo following the opening of a health clinic and the introduction of conservation, education, and alternative livelihood programs (27; referenced in 26).

Project OPNAH: Organization for the Protection of Native Amazonian Health by MIT is one initiative currently under development which seeks to provide healthcare services and open clinics in the Amazon region (29). The COVID-19 pandemic and its impacts on indigenous health (30) inspired other similar programs including the project “Improving health care provision for indigenous people in the Amazon region of Peru” by the Peruvian Ministry of Health and the German Agency for International Cooperation (GIZ) (31).

In addition to supporting the well-being of sustainable indigenous communities and enabling them to continue resisting illegal practices, access to healthcare can help mitigate adverse health consequences - such as water pollution - that result from illegal logging or mining practices on a local (28) and international level. One study suggests that up to \$2 billion USD in health costs could be saved each year by protecting Amazon Indigenous lands (32). Illegal trade in wildlife specifically has been linked to the spread of infectious diseases (33) which, in addition to threatening human health, can damage international trade, rural livelihoods, native wildlife, and ecosystem health (34).



Photo: taken by Amazon Frontlines, retrieved from the Hivos article “Amazon Indigenous Health Route” (37).

EDUCATION INITIATIVES

Access to education is also important to ensure that local and indigenous communities have the resources that they need to advocate for their rights and interact effectively with state agencies and corporations. The Rainforest Foundation Norway has worked to ensure access to equitable, culturally-sensitive education for indigenous populations in the Amazon since 1992 and has seen great successes in its projects in the Rio Negro, Acre, Xingu, and Yanomami regions of the Amazon (35). In the past, this project has been funded by the “One Day’s Work” initiative in Norway in which Norwegian students take one day off of school to work and then use their pay to advance global equity in education (36), an example of social engagement explored in more detail in section 6. Examples of public awareness initiatives relating to the illegal wildlife trade specifically are explored in more detail in section 5.

INFRASTRUCTURE DEVELOPMENT

While infrastructure development can help improve access to services including healthcare and education, it is important to keep in mind that the development of transportation infrastructure like roads can also have severe negative consequences for wildlife. The development of both official and unofficial roads has increased illegal logging, mining, and land grabbing by increasing access to conservation and Indigenous protected land (39; cited in 38). The development and harvesting of Amazon land that follows the creation of roads has been linked to neo-colonial practices, illegal incursions, and severe deforestation practices in the Amazon Basin of Brazil (40). Roads also prove an immediate threat to wildlife by fragmenting ecosystems and causing vehicular mortality (41). Currently, 41% of the Amazon Rainforest lies within 10 km of a road (38).

While current infrastructure development is often poorly managed and highly damaging (48), suggestions have been made for a more equitable and sustainable infrastructure network that would prioritize the health and resiliency of humans as well as animals and plants. To minimize the risk of illegal trade, governments should limit the development of new roads, improve monitoring technologies and enforcement capacity, and engage local populations in discussions about how best to preserve natural resources. By prioritizing local populations and environmental needs over harmful industry activities and domestic industrial policies (42), governments can ensure that new infrastructure projects support communities.

3. LEGISLATIVE STRATEGIES

To directly combat illegal wildlife trade and trafficking, strong legislation is needed, legislation that is resilient to changing government regimes. By creating new legislation on a national and international level, improving existing legislation, and strengthening enforcement capacity, illegal trade can be permanently eliminated. Legislative strategies can also include expanding protected areas and enforcement of protected areas' status as such, improving product certification mechanisms, and changing the attitude of governments, lawmakers, and judges towards wildlife crime. Illegal wildlife trade and trafficking must be recognized as a serious crime and be treated as such. To this end, political will must be gathered and sustained at a grassroots level; only then will illegal wildlife trade become a priority for lawmakers.



Image: retrieved from article “Deeper Dive: Fighting Wildlife Crime in West Africa” by Alice Stroud on Born Free USA’s website (43).

CREATING AND IMPROVING LEGISLATION

More international conventions should be held concerning trans-national co-operation on wildlife trafficking issues. Specifically, agreement must be reached concerning what crimes are punishable on an international level by freezing of assets or extradition, what species must be protected, and how enforcement can be coordinated across state lines (45). Countries should also work together to re-define patterns of international commerce and consumption, given that global demand for soybeans and other agricultural goods is an important driver of illegal deforestation (49). International law should be increased by creating a framework for animals not listed in CITES (45) and expanding the focus of CITES, which remains limited to protecting a few endangered species (113). Currently, no comprehensive international agreement exists governing forest resources and targeting illegal deforestation (59).

Individual states should strengthen their own laws by clearly defining wildlife trafficking as a crime; differentiating punishments for animal trappers, consumers, and illegal trafficking gangs; and increasing sentence times for convicted offenders of the law (45). Additionally, states should improve their re-release practices, ensuring that animals rescued from traffickers are adequately prepared for re-integration in the natural world and are released in appropriate locations conducive to their future well-being (45). Many national-level laws based on CITES are either too specific or too expansive in their scope, which creates serious legislative loopholes (113). While adopting international legislation to national needs, lawmakers should be careful to maintain consistency with international standards while ensuring that legislation is flexible and appropriate given local contexts (113). Laws should also adopt appropriate penalties and ensure that benefits reach poor communities (113).

While such additions to the body of environmental law would greatly reduce illegal trade, it may be very challenging for such laws to be passed and implemented. In the first place, conservation-oriented legislation may be vulnerable to changing priorities in government, especially when conservation is seen as being inherently damaging to economic growth as in Brazil (46) and Bolivia (49). For this reason, it is important to make law resilient - something that may be achieved by improving the deliberative stages of lawmaking, improving inclusivity

in the lawmaking process, and increasing flexibility in the law (47). For the same reason, it is important that conservation projects improve the economic value and viability of protected land (49). Because a large percentage of the constituency in Amazonian countries like Brazil are highly vulnerable to economic changes as a result of “premature deindustrialization” in these regions, it may be difficult for leaders who generally support conservation efforts to maneuver (46).

The ability of other countries to intervene in this context is also limited, as any type of punitive intervention may be construed as an assault on domestic sovereignty and may result in domestic support for a strong “nationalist” leader not committed to conservation and co-operation (46). Historically, the problem of sovereignty has been a great obstacle to inter-regional agreement - as in the 1992 Rio ‘Earth Summit’ negotiations which stalled as a result of suspicion on the part of developing countries of industrialized countries’ mixed motives in dictating how natural resources should be used (59). The issue of sovereignty can also be a problem in regional diplomacy; the Amazon Treaty Cooperation Organization (ATCO), one of the most effective organizations united against the illegal wildlife trade, has been weakened by the sovereignty question and decreasing interest in joint action (20). Lack of legislation and effective enforcement infrastructure may further limit the ability of governments to achieve their conservation goals (46; 48). Given these significant impediments to passing and/or improving legislation, it may be more effective to combat the illegal trade and deforestation problems using existing laws (47).

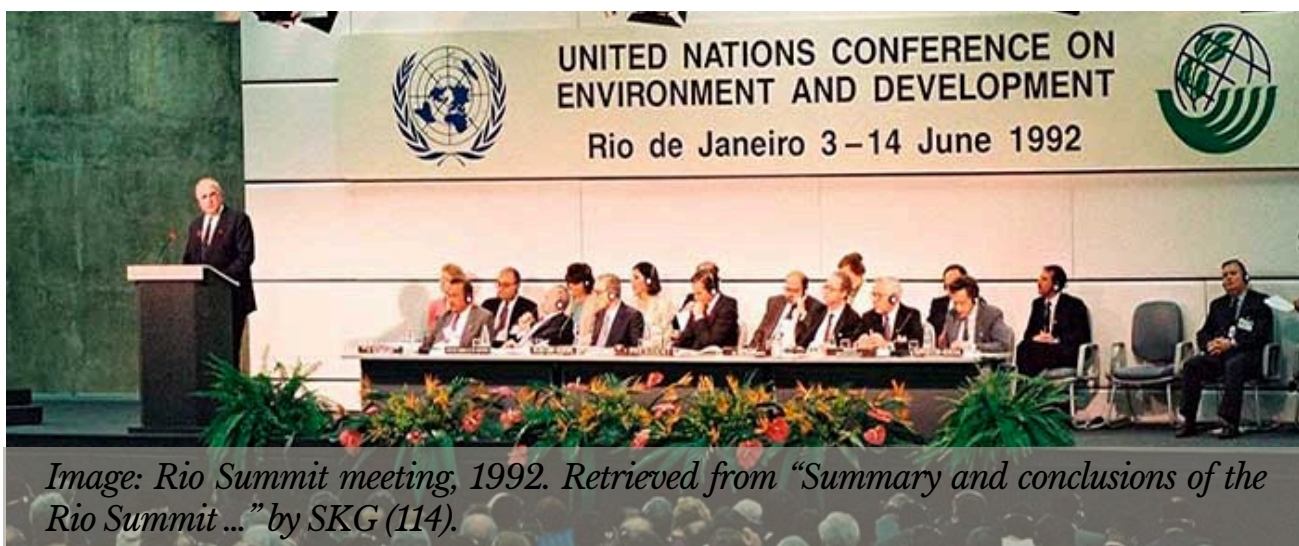


Image: Rio Summit meeting, 1992. Retrieved from “Summary and conclusions of the Rio Summit ...” by SKG (114).

STRENGTHENING ENFORCEMENT

One of the ways in which the effectiveness of existing legislation may be improved is through strengthening and expanding enforcement capacity. Many Amazonian countries - and the environmental departments within them - have a high risk of corruption (50) which significantly undermines enforcement of anti-trafficking laws. Strategies to fight corruption include establishing anti-corruption offices inside environmental agencies (49); improving compliance rules, ethical codes, and corruption reporting processes (50); creating anti-corruption laws; and increasing government transparency, international cooperation, and civil society monitoring processes (51). Increasing local governance and indigenous governance in particular can also improve conservation outcomes and reduce the damages done by corrupt officials on indigenous societies (52; 58).

Environmental departments may also be strengthened by improving registration and reporting of environmental crimes and seizure of confiscating animals; centralizing investigation programs to maximize the resources allocated to different departments for environmental programs; and increasing the capacity, guidance, training, and equipment given to enforcement agencies, especially those stationed at the border (45). Training programs to increase awareness among legislators, enforcement agents, and members of the judiciary about how to best apply legislation to certain cases and which treatments should be applied to what offences are particularly important (45). Trainings should cover contraband, smuggling, forgery of official seals, and species identification and should be repetitive to ensure that officers, legislators, and judges have robust knowledge upon which to build when executing their functions (45). Creating courts that feature specialists in environmental crime and foster a spirit of innovation and problem-solving can also improve the implementation of existing laws (53).

Practical strategies for enforcement agencies to employ include hotspot policing, in which certain areas with a high poaching risk are targeted by enforcement officials; community policing, in which co-operation between anti-poaching officers, civilians, and law enforcement agencies is maximized and civilians are recruited into anti-poaching operations; and, more controversially, green militarization in which enforcement agencies are equipped with more powerful weapons and stricter penalties for offenders (54). Improving accountability for

enforcement officials is important in all situations to ensure that increased capacity and militarization does not lead to an increase in human rights abuses (94; 113). Improper enforcement may limit trade that is actually beneficial to conservation, denying communities necessary avenues for development and improvement and limiting communities' right to self-governance (113). Militarization pursued without caution, the provision of automatic weapons, and the promulgation of harmful shoot-on-sight policies may encourage excessive violence and may even incentivize extrajudicial killing (113).

Introducing reforms to enforcement agencies has proven greatly effective in a number of cases (55). A recent project by the UK Defra Illegal Wildlife Trade (IWT) Challenge Fund in Malawi leveraged many of the strategies discussed above by training the judiciary, training enforcement agencies so as to improve conviction rates, developing a national wildlife crime database with finger printing capacity, raising awareness about environmental crime among Malawians, and developing a training package for other countries' judiciaries and enforcement officers (56).



Another project, funded by USAID as part of Asia's Regional Response to Endangered Species Trafficking (ARREST) program, trained 200 essential people, arrested critical individuals in the illegal trade, trained 822 airline staff, created a taboo on wildlife crime, and improved laws in three countries among other accomplishments (57). Interpol has worked along similar lines to increase the capacity of regional law enforcement, justice systems, and customs agencies although their efforts have been limited by lack of staff (20).

Image: "A Malawi enforcement officer shows just some of the ivory recovered from poachers" by Mark Kehoe retrieved from Africa Geographic (60).

CERTIFICATION

Certification is an important component in the fight against deforestation and illegal logging (20; 115). Initiatives including the 2006 Soy Moratorium, the 2009 Beef Moratorium, and the 2022 Radar Verde project have done much to improve transparency in the soy (61) and beef supply chains respectively and improve industry accountability. This was accomplished in the Radar Verde project by having ranchers fill out a questionnaire about their business practices, supported by accompanying evidence (75). In this way, the burden of reporting and data collection was placed on companies themselves, not enforcement agents. Despite some successes, these policies have left gaps - the Soy Moratorium, for example, doesn't monitor compliance in farms themselves (61). In Europe, laws including the Supply Chain Due Diligence Act (LkSG) in Germany, the Supply Chain Act in the Czech Republic, the Supply Chain Compliance and Due Diligence Act in Estonia, the French law on Duty of Care in France, and the Transparency Act in Norway have been passed mandating some degree of sustainability reporting (62). There are opportunities for more countries to pass similar laws or to sign onto LkSG. Additionally, certification schemes may be improved by creating a mechanism for independent, third-party auditing; increasing the resources invested in certification; promoting management interest in sustainability; and improving the business-consumer relationship (see section 7 for more details).

CONSERVATION AREAS

The persistence of illegal activities in conservation areas or protected areas highlights the need to understand the illegal trade and trafficking problem as one that requires a range of strategies; simply naming an area as protected land does not guarantee that illegal trade in that area will be eliminated. Nearly half of protected areas (PAs) around the globe experienced substantial deforestation and biodiversity loss in the late 1990s and early 2000s, largely because of lack of funding, poor management, and vulnerability to changing government priorities (63). In order to combat this trend, poor-performing conservation areas should be managed by locals, should receive investments from the global community, and should develop inventories of resident species in order to better understand the scope of the threat faced by illegal trade and biodiversity loss (63). If new protected areas are created, it is important that the right framework be applied since different types of protected areas - including strict PAs (SPAs), sustainable-use PAs (SUPAs), and Indigenous territories (ITs) - have different associated costs and benefits; while ITs are the most effective at reducing deforestation, other PAs have greater socio-economic benefits (64). Land conservation may be improved by pursuing Assisted Natural Regeneration (ANR) programs (65) and implementing Rural Environmental Registers (CARs) (66).

4. SCIENTIFIC STRATEGIES

Effective policy making and policy enforcement relies on effective data collection and monitoring. As science improves, new methods of data collection and scientific strategies for combating illegal trade will become available. For this reason, legislation (and assigned monies) should be flexible, allowing agencies to invest in scientific research and capitalize on new developments.

WILDLIFE IDENTIFICATION



Image: “Ave | Pássaro (Passeriforme)” from the Ibama archives (7).

Wildlife laundering, the practice whereby illegal harvesting or capturing of wildlife is disguised as legal, is a major obstacle to enforcement agencies. To combat this practice, particularly prevalent in the illegal songbird or passerine bird trade where birds marketed as bred in captivity are in fact captured from the wild, a range of identification strategies have been developed including isotope identification, DNA paternity tests, and marking systems. As a result of the different diets and environments of captive-bred animals, their tissues accumulate different isotopes of elements like carbon and nitrogen than birds raised in the wild (67). Analyzing the isotopes found in

tissue samples of captive animals can therefore confirm whether or not the animals were bred in captivity or captured from the wild (68). Isotope analysis can also be used to determine the geographic origin of plants, enabling enforcement officials to confirm whether or not timber or other plant life was sourced from protected areas or through legal means (69). A database of expected isotope values for different tree and plant species in different regions should therefore be developed for comparison purposes so that isotope analysis can be effective at pinpointing the source location of tested timber and plant products (69). DNA tests have also been used to successfully trace the paternity of animals suspected to have been stolen from legal breeders (70) and identify the origins of animals or animal parts (71).

Standardizing electronic rings, chips, or other marking systems used to identify animals bred in captivity and to track wild animals between and within countries is essential for effective use of these tools (45). Sharing data about seizures, hotspots, and offenders and creating shared databases (45) for such information is also important to ensure effective trans-national co-operation.

DETECTION AND MONITORING

In addition to identification technologies, it is important that tools exist for enforcement officials to monitor trafficking hotspots, track wild endangered animals, and collect data about trafficking generally. Physical electronic devices like radio frequency identification tags (RFIDs) or radio collars can be used to track the location of wild animals and provide real-time poaching alerts (72) as can acoustic traps (73) which transmit harsh sounds like gunshots or chain saws to enforcement offices. Border patrol agents may benefit from the services provided by wildlife detection dogs (74). Sharing data and establishing wide-range military-style monitoring and communication systems (73) with other departments and state agencies may further improve the efficacy of anti-poaching efforts while satellite monitoring systems like GLAD-L (Global Land Analysis and Discovery - Landsat) and RADD (Radar for Detecting Deforestation) in addition to comprehensive geographic mapping databases like the MapBiomas Network (77) can help enforcement officers to observe and record hotspot areas (76).



Image: "A wildlife sniffer dog undergoes training in India" retrieved from TRAFFIC (78).

5. PUBLIC AWARENESS

Both local communities - especially those who might support the illegal trade intentionally or inadvertently - and people all around the world (consumers) need to be aware of the dangers associated with illegal trade and trafficking. Certification systems (see section 4 for more details) can help consumers make informed choices about the products they buy while education campaigns can help shift demand away from exotic products associated with endangered species. Because illegal practices like hunting may be motivated by cultural traditions (1) rather than purely mercenary motives, public education on the supply side is also



important. To support public awareness in both countries that supply and countries that receive contraband, government agencies and policymakers need to recognize the importance of combatting illegal trade and trafficking and communicate this urgency to the public. Ultimately, public awareness should facilitate public and community engagement in anti-trafficking efforts, as explained in more detail in section 6.

Image: A flyer produced by Ibama meant to educate the public about the real impacts of tourist products and traditional handicrafts (79).

The ultimate goal of public awareness should be two-fold. In the first place, public awareness should contribute to demand reduction. In the second place, public awareness should contribute to active public co-operation with and aid to enforcement bodies. Education and outreach techniques including exhibits, newsletters, public meetings, advertisements, and Internet campaigns have had some success in increasing sustainable behaviour, reducing poaching, and improving public support of and adherence to conservation laws (80). Media coverage of conservation issues is particularly important in shaping public response (86).

For education campaigns focused on the supply side, emphasizing how conservation and anti-poaching activities can benefit local communities can be an effective way to ensure that information is absorbed (81). Campaigns that seek to reduce demand for goods have been effective when they develop a strong relationship with the press, treat all informants equally, and work with potential suppliers of illegal goods - such as practitioners of traditional medicine - to improve understanding regarding medicinal uses of animal parts (89). It is important that education campaigns are culturally sensitive, avoiding both harmful stereotypes in their portrayal of the problems associated with the trade (82) and ecological imperialism in their description of pristine “wilderness” (83). Campaigns should also be careful to target their messages appropriately, as populations of different ages (87) and genders (88) may vary in their understanding of the illegal trade problem (87) and their sourcing of illegal goods (88).

One example of an education campaign focused on the illegal trade is the UN’s Wild for Life campaign. As part of this campaign, influencers on social media are asked to identify and post about their “kindred” endangered species. The campaign website includes instructions for others who want to join the social media campaign in addition to articles and interviews relating to current environmental issues, a virtual safari, and other interactive components, all of which aim to engage the public in a discussion about threatened species (84). The UN estimates that the campaign has reached over a billion people and engaged at least 10 million people on social media (85). Other social media campaigns have targeted influencers who own exotic animals or luxury goods, educating them about the illegal trade and encouraging them to use their platforms to promote responsible consumption (45). Tourists have also been a target of education campaigns. Signatories of the Travel and Tourism Declaration on Illegal Wildlife Trade have pledged to adopt a zero-tolerance policy towards the illegal wildlife trade, promote responsible tourism, train workers in the Travel and Tourism sector in the illegal trade, and target the benefits of sustainable tourism to local communities (90).

6. PUBLIC ENGAGEMENT

From community engagement to community management, NGO development, and coalition building, there are lots of ways to leverage grassroots power against the illegal wildlife trade. In Indonesia, tiger hunting was reduced by more than 75% and up to 80% of the tiger trafficking network was dismembered following WCU (Wildlife Crimes Unit) collaboration with civil society (91). While more active citizen involvement might include locals working in enforcement agencies or acting as informants, more informal opportunities for citizen engagement include fostering a close relationship with journalists and the community, having open discussions about important decisions, incorporating indigenous or local knowledge in enforcement efforts, and supporting the work of NGOs. Many community-based programs also involve strategies previously discussed including social strategies like health and education support, economic strategies like alternative income-generation programs, and public awareness programs.



Image: by the IUCN Esaro, retrieved from Project FLoD webpage (93).

It is critical in all approaches to ensure that public engagement remains community-based and that locals have a say in decision-making processes (92). A number of international commitments have made it clear that public awareness and engagement is a priority. Principle 10 of the Rio Declaration (1992) reads “Environmental issues are best handled with the participation of all concerned citizens, at the relevant level” (cited in 94). Principle 22 of the same document reads “Indigenous people and their communities and other local communities have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognize and duly support their identity, culture, and interests and enable their effective participation in the achievement of sustainable development” (cited in 94). Article 44 of the WSSD Plan of Implementation (2002) expresses similar sentiments: “Biodiversity [...] is currently being lost at unprecedented rates due to human activities; this trend can only be reversed if the local people benefit from the conservation and sustainable use of biological diversity” (cited in 94). Despite the widespread recognition of the principle of public engagement in existing policies, these principles have yet to be translated into meaningful efforts to engage local communities at every stage of decision-making in conservation projects around the globe.

PUBLIC ACCESS AND DECISION-MAKING

Recognizing the importance of the community decision-making processes in the fight against illegal trade, the International Union for Conservation of Nature (IUCN) in collaboration with other organizations created an initiative called Local Communities: First Line of Defense against Illegal Wildlife Trade (FLoD) to understand local motivations for engaging in illegal activities and combat underrepresentation of community voices (93). The project found increasing community incentives for stewardship and increasing political will for reform to be the most effective methods of moving towards a more sustainable community management model (93).

Another example of a project focused on community engagement is “Projeto Tamar,” a project to save Brazilian sea turtles from extinction. Part of the project consisted of teaching fishermen how to release turtles from fishing nets and resuscitate turtles caught in fishing lines in addition to supporting fishermen in



Image: “Soltura de tartarugas no Projeto Quelônios da Amazônia (PQA) | Itamarati/AM” by Fábio Cardoso retrieved from Ibama (7).

earning money in other ways such as by oyster farming (95). The program was also widely successful in curbing the harvest of gravid females and eggs. The success of the program as a whole was largely due to the strong emphasis on community participation. Efforts to maximize community involvement included employing former egg poachers as patrolmen, educating locals through community festivals, supporting local schools, supporting health care institutions, developing alternative income-generation programs for people previously dependent on the sea turtle trade, and encouraging sustainable ecotourism (96).

COMMUNITY-BASED FOREST MANAGEMENT

Community-based forest management (CBFM) is a form of self-government in which local or Indigenous governments assume responsibility for managing forest resources and protecting forests from deforestation and degradation. This conservation strategy directly engages and empowers communities, generates income for local communities, and reduces illegal trade (97).

Despite financial obstacles associated with CBFMs, it is possible for CBFMs to reduce poverty provided that they are paired with good governance, responsible development, and integrated management approaches (99). In order to be successful, CBFMs need national and international financial support and technical assistance (97). It is also important that governments - both local and international - commit time and resources to CBFMs and that participants are financially literate (98) and knowledgeable about forest resources (97). Efficient administrative systems are necessary to decrease entry barriers - like high initial costs associated with inventory, planning, and bureaucratic fees - and to combat obstructive regulations (97). Governments can also help CBFMs by offering guaranteed, preferential prices for harvested timber, the profits of which would fund schools, hospitals, and community products and help support the CBFM (97).

This is particularly important given the challenges that CBFMs have in securing a profit from sales given the lower prices and high quality goods offered by illegally harvested timber products (97). Roads and infrastructure, while they pose a threat to forests, may also help decrease transportation costs and support greater profit margins for CBFM timber sales (97).

CBFMs are also able to reduce illegal logging and increase forest area. A comparative analysis done in Ethiopia showed that forests managed cooperatively increased in area by 1.5% in the first two years of community management while forests not managed by an association decreased in size by 3.3% in the same period of time (100). Community-managed forests in the municipality of Felipe Carrillo Puerto in Quintana, Mexico also showed increasing forest sizes despite high population density even while a nearby protected area in Hopelchen, Campeche experienced deforestation (101). In Bali, India, CBFM initiatives not only protect against illegal logging and support local livelihoods but also protect forests from climate change by protecting rare species, increasing biodiversity, promoting carbon sequestration, and controlling fires (102). This fact highlights the ability of CBFMs to provide a range of services and be flexible to community needs.



Image: retrieved from the article “A glimpse of the perceived impacts of Community-based Forest Management (CBFM) in Indonesia” by AFoCO (103).

PUBLIC REPORTING

Public reporting of suspected illegal activity is an easy way for community members to support enforcement officials. The “informal guardianship” or non-professional reporting and monitoring services provided by communities is most effective in rural areas with minimal enforcement capacity (107). Many officials rely heavily on information from public reports (104) which is why it is important to gather more information about public reporting systems and find ways in which they can be improved. One example of a public reporting system is Brazil’s “Linha

Verde” service, which provides a number, online chat service, assistance request form, and information service for people wishing to make complaints, suggestions, claims, or requests for information to IBAMA, Brazil’s environmental protection agency (105). The service also receives reports on environmental crimes including wildlife and deforestation crimes (45). Reports from Linha Verde were used in a 2007 joint operation by IBAMA and “Rodovias Fedrais,” the Federal Highway Police to seize illegally trafficking birds (106). Further research should be done on the impacts of Linha Verde and similar reporting systems (45).

Despite the potential of public reporting to support the work of enforcement agencies, significant challenges remain. Dependence on public reporting may be inefficient due to the inevitable uncertainty of reports (104). Interpretation of reports may also be biased as enforcement officials may perceive reports involving foreign or commercial actors as more threatening irregardless of the actual threat implied by the report and the source of information received (104). In order for public reporting programs to be most effective, enforcement and conservation officials should be trained on how to perceive and minimize their own bias and evaluate evidence in an objective way (104). Other limits to effective response based on reports received include limited funding, mandatory adherence to an organizational agenda that may not prioritize action on a certain species, and lack of information regarding critical species (104).

PUBLIC RECRUITMENT

Establishing networks of informants among local residents can improve enforcement. Local communities often have better access information regarding who is poaching and where poaching is happening - essential information that is difficult for enforcement officials to obtain in other ways (106). Since informant networks will be most effective where people feel the strongest connection to wildlife (106), public education is an important prerequisite. Safe and secure anonymous reporting systems are also necessary for effective informant networks (106). Citizen informants should always be supported by well-armed enforcement agents, especially in areas where the illegal wildlife trade is being carried out by militarized “outsiders” to the community (106).

Enforcement agents, especially when heavily militarized, are most effective when their troops are supported by community recruits in the form of wildlife patrols (107). It is important that militarized patrol units protect communities as well as wildlife. To this end, cooperation with locals is essential (107). Community-based military conservation (CBMC), an older strategy that relies on communities to enforce anti-poaching laws, has proved effective in Zimbabwe (the Communal Areas Management Plan for Indigenous Resources) and Zambia (the Administrative Management Design Program) although it has also been criticized for increasing government surveillance control of land management (107). A recent fusion of CBMC with community policing has been evident in projects like the Tsavo Trust's Stabilization through Conservation (StabilCon) program that recruits and trains anti-poaching officers from the local community (107). Recruiting locals as informants and patrolmen may also provide access to Traditional Ecological knowledge (TEK) systems, further enhancing enforcement capacity (111).

NON-GOVERNMENTAL ORGANIZATIONS

Civil society can also aid enforcement agencies through participation in and co-operation with non-governmental organizations. NGOs are important because they can fill gaps left by government enforcement agencies; in carrying out independent forest monitoring (IFM), for example, NGOs can provide additional security to threatened animals and wildlife, though this approach relies heavily on funding, clear advocacy strategies, and good relationships with the government in order to be effective (109). Among NGOs working to protect animals specifically, there is evidence to suggest that NGOs who prioritize helping both individual animals and animal populations as a whole are most effective (110).

One obstacle to successful NGO operations is restrictive legislative structures. Because many legal systems in the Global South retain portions from colonial legal systems, laws governing state agencies may not permit significant collaboration with NGOs (111). For example, in Cameroon, only state agencies - not communities or NGOS - can bring cases regarding illegal trade to the state prosecutor (111). Even so, local NGOs can engage in collaborative law enforcement, working together with enforcement agencies and judiciaries to prosecute criminals (111).

Another important role of NGOs is identifying human rights abuses associated with the illegal wildlife trade and acting to reduce these abuses (113). Two prominent

NGOs that have performed this function include Human Rights Watch and Amnesty International, both of whom have reported, beginning in 2021 and 2019 respectively, forced evictions from supposedly protected areas and persecution of activists fighting the illegal trade (113).

PARTNERSHIPS AND COALITIONS

Partnerships and coalitions are essential for states and organizations trying to combat illegal trade and trafficking (111). Because the illegal trade can take revenues away from the government, decreasing the funds available to state agencies, is especially important that governments have access to shared networks (111). The importance of partnerships was emphasized by the Declaration produced by the 2018 London Conference on the Illegal Wildlife Trade, which pledged support to countries seeking to build capacity in anti-trafficking departments through joint international enforcement operations and the provision of equipment and training; encouraged the creation of partnerships between governments, local communities, private sector industries, NGOs, and academia; and recommended increased cross-border cooperation through regional and multilateral agreements (112). In recent years, increased intelligence sharing and collaboration in addition to specialized training of agents in different countries by INTERPOL have improved INTERPOL operations, though coordination efforts remain limited in scale and hampered by poor governance, lack of consumer awareness, and limited finances (115). An international donor system should be established to finance conservation efforts and greater collaboration between states should be facilitated by the UN (115).



Image: retrieved from Brookings research article "China-linked wildlife poaching and trafficking in Mexico" (108).

On a national level, co-operation between actors is also essential. Because wildlife trafficking is often not a priority for regional courts, strong evidence and comprehensive knowledge of laws and regulations are needed to prosecute cases (111). Co-operation between enforcement agencies, judiciaries, conservation offices, and NGOs can ensure that prosecutions are successful (111).

7. OTHER VOICES

This section includes information gathered from interviews with Dr. Elizabeth Underwood, Director of the Environmental Paper Network (North America); Zoltan Kun of the Forest Alliance, World Commission on Protected Areas, and Commission on Ecosystem Management; Christopher Lamoroux and Kat Henkle-Kawa of Social Accountability International; Dr. Canan Gunes Corlu of Boston University; and Amy Clark Eagle of the Forest Stewardship Certification. This report also owes a great debt to Saskia Ozinga of Fern, Warwick Manfrinato, and Paulo Coutinho for their contributions to this project.

The reports that follow are based on notes taken during conversations with the above individuals, to whom this author extends their greatest thanks for their time and insights. Any inaccuracies contained in the following pages is entirely the fault of this author and should not be attributed to the above individuals. The articles that follow are based almost entirely on information provided by the above individuals but the particular wording in all cases - except when otherwise indicated - is the creation of this author and should not be considered - again, unless otherwise indicated - as direct quotation. This author also accepts full responsibility for any errors made in translating the interviewees' oral communications into written prose.



Image: free image from Canva

ASSESSING OPPORTUNITIES FOR CONSUMERS, NGOS, GOVERNMENTS, AND BUSINESSES TO FIGHT DEFORESTATION

*Based on a conversation with **DR. ELIZABETH UNDERWOOD**, the North American Director of the Environmental Paper Network (EPN). A global network NPO with working groups on four continents, the EPN conducts lifecycle assessments of paper; advocates for paper recycling and reduction policies; and fights against monoculture planting, human rights abuses, and deforestation associated with the paper industry. The organization sends regular newsletters to over 15,000 e-mail addresses and has about 750 subscribers.*

The European Deforestation Regulation (EUDR) was scheduled to go into effect in December 2024. When promulgated, it would mandate that harvesters logging wood in Europe or importing wood into Europe would need to prove that no deforestation was associated with their products. Importers of rubber, cocoa, and coffee, industries closely associated with deforesting valuable and in many cases, old-growth, forests would also have to prove that their products were harvested sustainably.

At least two countries - both in Africa - had mechanisms and legislation in place ready to comply with the EUDR's planned promulgation in December. Creating international legislation like the EUDR is important because it can lead to the promulgation of a lot of legislation on a national level that mirrors international policy. Successful implementation of international legislation on a national level can also cause other countries to follow suit, expanding the scope and efficacy of the legislation on a global scale.

Unfortunately, this important legislation was opposed by the United States under the leadership of President Joseph Biden, ostensibly out of concern for possible harm done by this legislation to the paper and forest industries. As a consequence, the legislation is currently in limbo. Amendments to the EUDR, scheduled to appear by

December 18, 2024, are likely to further contribute to the unravelling of one of the most progressive and promising forest policies of the modern era.

The EPN has amplified voices of civilians in support of the EUDR and against amendments, supporting advocacy on both a national and international scale. The NGO Fern has also been a strong supporter of the EUDR and particularly active at Brussels negotiations. One of the main obstacles that NGOs and citizens have encountered when advocating forward-thinking policy like the EUDR is the powerful Big Business lobby. To combat this, it is essential that governments promote transparency in all of their operations and prioritize civilian and environmental constituency groups at the negotiating table.

There is the potential for more policy like the EUDR. But there is also a third option that is dependent on neither local advocacy nor on the promulgation of international legislation; it is possible - and advisable - to work on changing policy and business processes associated with import/export commodities by fostering more intimate consumer-business relations. Governments alone will not ensure that businesses don't conduct deforestation. Responsible businessmen and ethical consumerism will.

Consumers are already pushing businesses to be more responsible. Kimberly Clark and Georgia-Pacific have both promised not to harvest or source materials from endangered areas. Toilet paper, often sourced from invaluable hardwood or old-growth forests, is one of the EPN's focuses. As a response to consumer pressures, Kimberly Clark has pledged not to destroy ancient hardgrowth forests for toilet paper. The paper company Mowhawk uses 100% recycled material in its products. New Leaf production is also doing real work to transition to sustainable paper alternatives - not just greenwashing.

Sustainable choices can benefit both consumers and businesses - and can happen independent from governments. In the '80s, for example, tuna fish companies like Sunkist and Bumblebee introduced dolphin-safe labels in response to growing consumer demand about the health and safety of dolphin populations threatened by tuna nets. These companies - as well as others with the label - were able to sell more tuna fish at a higher price compared to companies that did not have a dolphin-safe label.

Of course, consumers should not rely entirely on businesses to self-regulate. Greenwashing remains a real problem, as companies seek to capitalize on consumer demand for sustainability with changes that are only skin-deep. This is where NPOs have an important role to play in watching companies and alerting consumers to unethical behaviour. The EPN has performed this role frequently, reporting on the perfidy of companies like Suzano whose production of unsustainable wood pellets is marketed as “green energy.” By falsely advertising their businesses as seeking to advance the UN’s SDGs, unsustainable biomass companies like Suzano are subsidized by banks and government even while they damage harmful ecosystems. In the case of Suzano, their “sustainable” wood pellets are sourced from monoculture plots of flammable eucalyptus in the Amazon.

NGOs like the EPN fight biomass by attending climate conferences like COP or Climate Week in NYC to spread awareness about company malfeasance. NGOs can also lobby governments directly to hold companies accountable. To do this, the EPN has different working groups around the world including groups in South America and Indonesia, areas where exploitation of natural resources is especially harmful. These working groups collaborate with different communities to amplify local voices. They also provide financial resources and important services to responsible communities.

In America, relatively sustainable production is often easier because most old growth forests here - unlike those in Canada, the Amazon, Indonesia, or the Global South generally - have unfortunately already been logged and replaced with monoculture stands. To push more sustainable practices in America, the EPN has advanced policies to reduce paper demand. Three policies currently being advocated for by the EPN would cumulatively act to save 11 billion sheets of paper from use. These policies attack “mandated government waste,” a term used to describe documents that the United States requires be printed in paper form - not sent electronically. Examples of “mandated government waste” include superfluous pharmaceutical prescription information sent to pharmacies along with replicate electronic documents, healthcare information including explanation of benefits documents, and financial documents like 401k and IRA. The EPN’s policies would eliminate the requirement for pharmaceutical information to be sent in paper form and would give individuals the option to choose electronic or paper copies of their own health and financial forms.

INTERNATIONAL LEGISLATION AND DEFORESTATION

*Based on a conversation with **ZOLTÁN KUN**, member of the Forest Defenders Alliance, World Commission on Protected Areas (WCPA), and Commission on Ecosystem Management (CEM).*

It is important for a treaty on sustainable supply systems to consider the baseline of sustainable development - that is, biological diversity. In the wedding cake model of human development, sustainable development must be considered the foundation upon which everything else - society the economy - and is based. Unfortunately, many businesses do not consider this and consequently prioritize the economy over biodiversity. Recent legislation in Europe - the European Deforestation Regulation - is one example of legislation that addresses supply chains in a meaningful way and seeks to reduce deforestation. Unfortunately, amendments to this legislation have decreased its efficacy.

Another critical element in a treaty is fair share of resources and benefits of the treaty. Much cocoa used in Europe is sourced in Ghana, so a treaty focusing on deforestation and the cocoa industry in Europe should also consider the impacts that imports from Ghana have on workers and the environment.

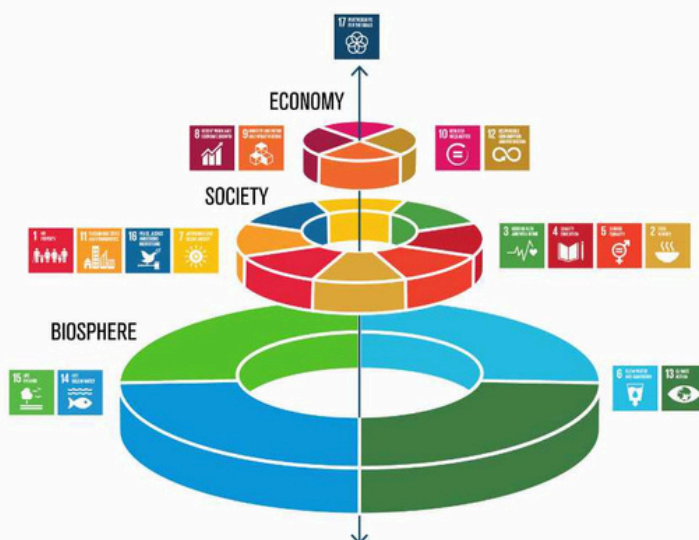


Image: the SDGs wedding cake model.

<https://www.stockholmresilience.org/research/research-news/2016-06-14-the-sdgs-wedding-cake.html>

Public support is important since, once again, most government and company leaders do not prioritize environmental concerns. The current political situation on a national (US) and international scale is not very hopeful and there does not appear to be much potential for serious green legislation. Like a phoenix, the bird that burns and is reborn from its own ashes, it may be that a strong movement for positive change will rise from the ashes of environmental and political destruction. There are a lot of people who care about change happening on a local level, even if they don't care about global change. People are not indifferent to climate change, even if leaders on a national or international level are. The recent floods in Spain and the public backlash against Spanish leadership highlight the close relationship between people and the land they live on - and the dangers of land use change.

The real enemy when talking about environmental degradation and company malfeasance is the stock exchange. All companies that register with the stock exchange are basically bad in the sense that they are by necessity operating on the basis of profit margins. Responsible ownership is reliant on relationships between a company or institution, the local people, and the land. When companies serve a select group of people, their shareholders, they lose contact with local communities. This makes it easy for companies to do harm with no accountability. While certification can help mediate this a little bit, there are no certification organizations operating today that are truly effective. Because auditors are paid by the company they certify and because of inherent financial constraints, there is no certification system that consumers can really place full confidence in.

THE LIMITS AND OPPORTUNITIES OF AUDITING: HOW TO ACHIEVE SOCIAL JUSTICE THROUGH CERTIFICATION

Based on a conversation with **CHRISTOPHER LAMOROUX**,
*Senior Manager of Standards & Impacts, and Kat Henkle-Kawa, Program Associate
of Standards & Impacts at Social Accountability International (SAI). The SAI is a
nonprofit organization that seeks to improve workers' lives through social auditing.*

The SAI manages the SA8000 performance standard that assesses working conditions, acts against child labor and forced labor, and examines whether companies have effective processes in place to prevent abuse of workers' rights. The SA8000 standard is a voluntary verification which means that companies must contact SAI to receive this certification. After a company contacts SAI, the SAI will perform an independent audit which, if successful, will secure certification for the company for a period of three years.

Social auditing is very difficult because it requires auditors to draw broad conclusions with limited evidence and resources. Auditors often have only one or two days to collect limited data as cheaply as possible. Because much of what a social auditor assesses is qualitative in nature, it is difficult to create simple standards that can be easily generalized. Additionally, a conflict of interest is created in voluntary auditing when companies pay the auditor for conducting the audit.

Auditing has a lot of potential but is also very difficult to perfect because it involves so many disparate groups - producers, buyers, the government, and society generally. There are ways that some of these groups - governments for instance - can improve auditing. Investing in legislation and regulation to increase mandated government reporting and raise thresholds of performance might improve auditing and provide consumers with more information about companies. There is more awareness now than there was in the past about the harm that companies can do and consequently a greater demand for reliable and comprehensive auditing systems and reporting standards.

On the other hand, some argue that creating more regulations is only codifying systems that are ineffective. It is more important to initiate structural change than to create standards that companies can choose to be evaluated against. Mitigating the damage done by the system by making token changes only validates the system and its inequities. Some activists argue that we need more effective mechanisms to promote responsible business practices - including union and collective action since it is only workers, not companies or associations, that can advocate for their own interest. Introducing more regulations simply justifies a socio-economic system that is exploitative to many.

A third criticism, maintained by pragmatists, holds that companies won't make meaningful changes in response to certification. The conclusion follows that it is therefore most effective to use resources to mitigate the consequences of company behaviour rather than to try and change it. It is true that companies are mainly focused on short-term profit and this limits the resources that they can invest in sustainability. Ultimately, companies are beholden to their stakeholders and must show a regular profit. This means that any changes they make or any resources they invest in certification will be balanced against their profit. To create a better and more equitable business model will require significant structural changes, not just more certification requirements or incentives.

Certification and the auditing process is also inherently limited by financial resources. The time necessary to verify data and the cost of comprehensive auditing make it impossible to have a perfect system. The SA8000 certifications that the SAI does take on average \$100,000 per certification, require 30 days of an auditor's time, and could require between 5 to 15 days of on-site evaluation time. This is better than most programs but still insufficient to capture the full complexity of all of the issues an auditor is supposed to be assessing.

Certification really starts at the business level and is most effective when company leadership buys into it. Because of the limits of certification, it is possible for companies to obtain certification without actually being sustainable. If governments started mandating certification, it would be possible for businesses to meet the new requirements without solving any problems. Publically traded companies operate on a short-term, quarterly model which means that the long-term benefits of sustainable changes are often not taken into account.

RISK MANAGEMENT AND OPERATION NETWORKS IN THE ILLEGAL FISHING TRADE

*Based on a conversation with **DR. CANAN GUNES CORLU**, associate professor and faculty coordinator for the Supply Chain Management programs at Boston University. Professor Canan has researched illegal fishing and the ways in which it is related to sustainability and other trafficking activities. Professor Canan's research is focused on network operations and how different trafficking activities are related to one another. Her research team includes two professors from Boston University and one professor from the University of Delaware in Colorado. Her team has collaborated with C4DS, a nonprofit organization that works to study trafficking operations. **This article is very closely based on remarks made by Dr. Corlu' in a private interview. Her words have been slightly edited and some phrases have been rearranged for clarity, but most of the text consists of Dr. Corlu's direct statements.***

Risk is a big topic. When we talk about risks in supply chains there are generally two types of risks, and the way that you manage those risks are different. The first risk is your daily risks, like having demand exceed supply. These types of daily risks are usually manageable and are related to variability in life. There are also risks that we call “disruptive risks” and these are more like COVID-19 or an earthquake that happen rarely, but once they happen they stop the flow in the supply chain and affect all networks somehow. Right now, people are mostly talking about those risks since they really affect supply chains and are happening more frequently. The way to deal with this is scenario planning. You might not know when these things will happen, but you need to have a plan in place to address these risks should they occur. We talk about coming up with a playbook for companies and the playbook will have different scenarios for dealing with these risks. Cyber-risk is also a threat when you talk about technology. All of these risks can be grouped on whether they are more day-to-day risks or disruptive risks.

From the law enforcement perspective, one of the risks is that you will get a call reporting someone, and you will use resources to investigate something that may be not illegal after all. That is one of the risks out there. With the data available, you can discover the hotspots that law enforcement should focus on, thereby conserving

their resources. Data is also always going to be one of the challenges for this type of research. Data is limited and there is not very much publically accessible data. Google has done a lot of work with GIS systems and AI remote sensing in their Global Fishing Watch initiative [to collect more data].

Sustainability itself as a concept in supply chain management is a relatively new concept. It has existed before but has recently been receiving more emphasis. It is a new concept. There are researchers at Northeastern and other universities studying slavery or slave labor in supply chains as part of research on human trafficking. This is also pretty new. One recent paper looks at labor trafficking in agriculture.

Companies like Whole Foods are trying their best to enhance traceability in supply chains. There are some papers that are very pessimistic; [this pessimism is based on the fact that] even though supermarkets or restaurants are saying that they are sustainable, what you eat is often unsustainable. When it comes to Whole Foods, it is more trustworthy. But the system is difficult to understand.

There is not a “one size fits all approach” for countering illegal fishing. People like using Blockchain. It may be hard to implement. It increases transparency and I think it is helpful. But it may be difficult to implement. We have to study how illegal fishers are recruited and how the system operates. We should know what the hub areas are for the illegal trade. If we attack one of those nodes in the network, this is the best we can do with limited capacity. This may destroy 80% of the network. But there is not one approach that you can use. These networks are also very agile. When they are disrupted they somehow come back.

There is a paper called “Narco Fish” that looks at the connection between illegal fishing and drug trafficking, but we don’t know how it works. When you consider connections between different illegal networks, you have to look at material flow, financial flow, and sometimes people flow or labor flow as well. It is important to consider how organizations support each other financially. It is important to discover if it is just one illegal entity engaging in illegal trade or more than one entity in collaboration. In June 2022, President Biden released a memo on illegal fishing in which he called on all agencies to work together to solve this complicated problem. It could also be a good idea to come up with a separate entity that would do that. This is important. Biden’s memo was also asking agencies to collaborate with academics.

THE INS AND OUTS OF CERTIFICATION: ASSESSING OPPORTUNITIES TO SHIFT CONSUMER BEHAVIOUR

*Based on a conversation with **AMY CLARK EAGLE**, Director of Science and Certification at the Forest Stewardship Council (FSC) US, the pre-eminent global forest certification organization. The FSC label recognizes forests that are managed responsibly and allows consumers to support sustainable management.*

The main objective of any certification scheme is to identify and recognize companies that are engaging in sustainable management and to communicate this information to consumers through the use of logos or labels in order to impact consumer purchases. The main obstacles associated with certification schemes are the cost of certification, the fact that value of natural ecosystems is not always perceived, and lack of understanding on the part of consumers of what certification really means.

To be truly effective, it is also necessary that the company be committed to the certification process. The fact that companies choose to be evaluated by a third party already indicates some degree of commitment to sustainability. Making certification mandatory for all companies would be a mistake because it would remove this proof of commitment on the part of companies. There is not a real role for the legal system when it comes to certification since the real power of certification comes from the fact that it is voluntary.

The fact that auditors are paid by the company they certify does introduce a potential for conflict of interest in poorly structured certification systems. This risk can and has been mitigated by having auditors also be audited, a service provided by organizations like Auditing Services International (ASI). Making sure that auditors are not regularly sent to certify the same area also minimizes the risk of having an auditor develop a relationship with the businesses they are auditing. Having a pooled fund that all companies in the process of certification pay into could potentially further reduce the financial conflict of interest associated with certification; instead of being paid directly by the company they are certified, auditors would be paid out of this fund. However, such a system would probably be very complex and use too much time, effort, and money to establish.

There is evidence to suggest that consumers respond positively to certification. The electronic shopping service Amazon has an initiative in which they identify products as Climate Pledge Friendly. A product receives a Climate Pledge Friendly badge when it has been evaluated by Amazon to be climate friendly or to have received sustainability certification from a reliable organization. When a product has a badge, there is a 12% increase in sales compared to products that 'don't have the badge. Additionally, consumers who purchase a product with the badge are more likely to buy other products that have the badge.

As political climates in the US and elsewhere turn against climate action, the work that certification companies do becomes even more important. There is the chance that the US will see a decline in legal requirements for companies regarding sustainability and environmental standards. Certification standards of independent organizations like FSC will not, however, become less rigorous. This means that responsible companies will increasingly depend on certification to prove their commitment to sustainability and that consumers will need certification companies to tell them which companies are meeting baseline environmental standards. The FSC is and will remain trusted above governments, companies, and other environmental certifications.

The FSC is always updating its standards based on inputs from stakeholders and other metrics. The level of rigour of the label is aligned with the expectations of shareholders. This means that strong international legislation - like the recently proposed European Deforestation Regulation (EUDR) - could help the FSC to adjust its definition of forest cover and forest decline. The three pillars of sustainability - social, environmental, and economic - can also be engaged at global conventions and COP conferences.

The FSC works with partner organizations to accomplish its other goals which include supporting responsible harvesting, conservation, and restoration of forests. FSC working groups collaborate with local partners on these projects while sharing and receiving information from larger partner organizations. The FSC also partners with other organizations to identify wood products. The organization World Forest ID provides FSC with a library of wood samples that FSC can use to identify the location of wood in the products it certifies, confirming whether or not the wood was harvested illegally or unsustainably.

8. RECOMMENDATIONS

This section includes a summary of sections one through seven in the form of recommendations for a treaty on sustainable supply systems. These recommendations should not be considered definitive. They are an application of the ideas discussed in previous sections and do not necessarily reflect the opinion of this author, much less any greater consensus. Nevertheless, these points are important to consider when creating a treaty.

RECOMMENDATIONS DERIVED FROM SECTION 1: ECONOMIC STRATEGIES

- 1.The benefits of a treaty need to be targeted to local and indigenous communities and must serve to alleviate poverty in those communities.
- 2.The treaty must consider power relations between states and ensure equity in international relations.
- 3.The treaty must be flexible enough to allow implementation on the national or local level to suit the needs of the community. Developing countries may need to invest more resources into education efforts or social programs before implementation of sustainable supply chains or certification efforts can be successful.
- 4.Treaty development and negotiation should engage local communities and represent the needs of these communities. Deliberative approaches in which all stakeholders - including local communities - may help negotiators make equitable tradeoffs when considering how to define sustainable harvesting, sustainable development, conservation areas, and other relevant terms.
- 5.The treaty must ensure that a sustainable way of life is protected for local and indigenous communities and that these communities are protected from exploitation by industries and governments.
- 6.The treaty should consider how alternative-income programs can reduce illegal activities.
7. The treaty must be supported by reliable and sufficient funds.
- 8.Developed countries must give the funds necessary for carrying out treaty provisions to developing countries.

RECOMMENDATIONS DERIVED FROM SECTION 2: SOCIAL STRATEGIES

1. The treaty should recognize that strong political and social institutions - including healthcare, education, and access to basic goods and services - are necessary in order to combat the illegal trade effectively.
2. Basic health and social services should be affordable and available to all people - especially indigenous communities living sustainably on the land - as part of the treaty.
3. Owners or directors of illegal business and operations should never be the only source of healthcare for people in a community.
4. Provisions in the treaty should require that any new development projects be assessed for potential harm to ecosystems and wildlife - and for their potential, in the case of roads and other infrastructure, to facilitate illegal trade and trafficking. Development projects should only be permitted to move forward if they are really in the best interest of local communities and ecosystems.

RECOMMENDATIONS DERIVED FROM SECTION 3: LEGISLATIVE STRATEGIES

1. This treaty needs to consider previous legislation and work to fill the gaps left by this legislation.
2. This treaty needs to consider how it can be enforceable at all levels government.
3. Enforcement mechanisms for provisions - including freezing of assets and extradition - should be incorporated into the treaty.
4. The treaty should detail how enforcement of provisions and anti-poaching activities may be coordinated across state lines.
5. The treaty should mandate regular conferences between signatories to further refine provisions and inter-regional implementation efforts.

6. The treaty should consider international patterns of commerce and consumption and seek to reduce demand for products like soybeans and other agricultural goods that are closely tied to deforestation.
7. Enforcement mechanisms for provisions - including freezing of assets and extradition - should be incorporated into the treaty.
8. The treaty should include special provisions governing species not covered by CITES and forest resources.
9. The treaty should include provisions targeting illegal deforestation specifically.
10. The treaty should include provisions mandating that signatory states implement legislation on a national level that clearly defines wildlife trafficking as a crime and differentes punishments for different offenders of illegal trafficking crimes.
11. The treaty should include guidelines for re-release of seized wildlife.
12. The treaty should secure life insurance for anti-poaching enforcement agents.
13. The treaty should include provisions to fight corruption and improve transparency in legislative and enforcement bodies.
14. The treaty should establish an international anti-corruption body or include provisions to support a third-party anti-corruption organization that would help to coordinate anti-corruption efforts related to the other provisions of the treay.
15. The treaty should establish a reporting system for compliance issues and corruption issues associated with the illegal trade.
16. The treaty should require nations to submit data into a single integrated, publically accessible data management system.
17. The treaty should allocate resources to increase enforcement capacity, training, and equipment.
18. The treaty should include provisions mandating relevant training for judicial, legislative, and executive employees.
19. The treaty should consider the potential for hotspot policing, community policing, and other cost-effective policing strategies to improve enforcement.

20. The treaty should include provisions to prevent human rights abuses that might result from enforcement activities.
21. The treaty should include provisions for independent, third-party auditing in all sectors.
22. The treaty should reserve resources to support certification processes.
23. The treaty should reserve resources to fund protected areas.
24. The treaty should promote local management of protected areas.
25. The treaty should promote increased reporting and documentation of species biodiversity in global ecosystems.

RECOMMENDATIONS DERIVED FROM SECTION 4: SCIENTIFIC STRATEGIES

1. The treaty should allocate resources to fund ethical scientific research relevant to wildlife, illegal trafficking, certification, and sustainable supply systems operations management.
2. The treaty should be flexible to allow for future improvements in technology while recognizing the limits of current technologies.
3. The treaty should include provisions for the establishment of a comprehensive library of wood isotope samples.
4. The treaty should create a standardized system of rings, tags, or chips to identify animals legally bred in captivity.
5. The treaty should seek to eliminate captive breeding of all animals.
6. The treaty should include provisions for the development of an integrated international system of animal tracking and wildlife monitoring.
7. The treaty should establish shared databases for information useful to enforcement agencies including data on illegal wildlife trade seizures, hotspots, and offenders.

RECOMMENDATIONS DERIVED FROM SECTION 5: PUBLIC AWARENESS STRATEGIES

1. The treaty should consider how cultural factors might influence implementation of the treaty at the local level.
2. The treaty should allocate resources for public awareness initiatives and efforts to inform stakeholders and the general public about the treaty and its provisions.
3. The treaty should consider how government agencies and policymakers can best shape dialogue surrounding the illegal trade and effectively communicate the urgency of combatting the illegal trade.
4. The treaty should consider how governments and enforcement agencies can work with potential suppliers of illegal goods - such as practitioners of traditional medicine - to reduce the illegal trade.
5. The treaty should consider strategies for combatting the online illegal wildlife trade.
6. The treaty should consider how social media can be leveraged to combat the illegal wildlife trade.
7. The treaty should consider how to engage consumers in education efforts.

RECOMMENDATIONS DERIVED FROM SECTION 6: PUBLIC ENGAGEMENT STRATEGIES

1. The treaty should include provisions to secure a place for Indigenous and local communities in decision-making processes.
2. The treaty should consider how effective collaboration with NGOs may be achieved.
3. The treaty should include provisions to support NGOs.
4. The treaty should support and include provisions relating to community management practices.

5. The treaty should consider how members of civil society can safely be involved in enforcement efforts as informants and enforcement agents.
6. The treaty should include provisions to protect journalists.
7. The treaty should consider how indigenous knowledge can best be incorporated in treaty provisions and be protected by the treaty.
8. The treaty should include incentives for responsible stewardship of natural resources and wildlife.
9. The creation and implementation of the treaty should be complemented by efforts to increase political will for environmental legislation.
10. The treaty should allocate resources to support the creation of community-based forest management (CBFM) systems.
11. The treaty should create bodies through which fledgling CBFMs can obtain guidance and support.
12. The treaty should promote training for enforcement officers on how to best use information obtained from public reporting services.
13. The treaty should promote the dissemination of information among enforcement officers regarding critical species.
14. The treaty should seek to minimize government abuse of enhanced community surveillance that may result from treaty provisions.
15. The treaty should include provisions to protect people from forced evictions from protected areas.
16. The treaty should include provisions to protect peaceful activists.
17. An international donor system should be established to finance conservation efforts.
18. The UN should facilitate greater collaboration between states regarding implementation of the provisions of this treaty.

RECOMMENDATIONS DERIVED FROM SECTION 7: OTHER VOICES

The points made in section seven relevant to the treaty are generally covered by recommendations already made above.

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