Supplementary information to: Implications of the UN Sustainable Development Goals for the world's forests.

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Appendix A: Supplement to Chapter 2

A.1. Literature review search protocol

Literature searches covered three online databases: Web of Science (WoS), CAB Abstracts (CAB) and Google Scholar (GS). Data from WoS and CAB were exported on April 22nd 2018, and explored first, and GS searches began on July 2nd 2019, and continued until November 10th 2019. Search terms were developed and applied for each of the 12 SDGs deemed to be 'non-environmental' (i.e. SDGs 1 to 11, and 16), and excluding targets in the remaining SDGs deemed environmental. We considered a target to be environmental if its wording suggests that achievement of the target rests wholly on conserving, protecting or improving some aspect of the natural environment. Searches were based on keywords taken from the official SDG targets and indicators (Inter-Agency and Expert Group in Sustainable Development Goal Indicators, 2016). Keywords were defined as any word or short phrase that applies specifically to at least one target within one or more goal. Ambiguous and grammatically irrelevant (e.g. articles, pronouns) words were omitted. To avoid excessive irrelevant returned items, words with multiple meanings or applications (e.g. 'health') were used only with associated words occurring in the SDG targets and indicators (e.g. 'health personnel', 'mental health', 'health-care service' etc.). All search terms were reviewed by co-authors, and passed through two thesauruses (the CAB Thesaurus, associated with the CAB Abstracts, and http://www.thesaurus.com) and relevant synonyms added as appropriate.

The search functions for GS differ from those used by the other two databases and so were conducted as separate component. For all searches, target-related search terms were coupled (i.e. using a Boolean 'and' clause) with standardised search terms used to target papers that make specific reference to forests or similar habitats (rainforest* OR forest* OR woodland* OR jungle* OR mangrove*), and for the WoS, CAB searches we included an additional search clause to target papers with a focus on external interventions (intervention* OR project* OR strateg* OR program* OR scheme* OR enterprise*), which we consider to the be the most insightful form of evidence relating to our topic. Searches in WoS used the topic field (TS), and those in CAB used the

abstract, title and descriptor fields (ab, ti and de). We acknowledge that the use of an additional clause in two of our three searches will have limited some of our findings, but we considered this to be a reasonable way to limit search outputs to a more manageable number whilst giving priority to the evidence that we consider most robust.

Datasets from the WoS and CAB searches were combined and duplicates were removed using (i) unique identification numbers provided by the databases; (ii) DOI numbers; and (iii) a combination of title and year, the latter undergoing manual checks to avoid erroneous deletions. This process yielded a final list of 55,167 publications for review, although a few duplicate papers remained and were removed manually at a later stage.

GS searches used the advanced search option, excluding patents and citations, and placing the target-related term in the "with the exact phrase" section and the forest terms in the "with at least one of the words" section. For each target-related term, searches were run twice, first using the "in the title of the article" option and then using the "anywhere in the article option". For each search, the first 100 items listed were considered for inclusion. A total of 978 searches were conducted, although duplicate items were not monitored for this component, so the total number of unique items considered is not clear.

Inclusion/exclusion criteria

Applying the inclusion/exclusion criteria given in the following paragraphs, consideration of individual items was based on an established review protocol (Pullin and Stewart, 2006) of filtering by title, then by abstract, followed by extraction of information. This was conducted by three reviewers (JC, NT and JW-H), using checks for consistency (kappa analysis) between reviewers on randomly-selected subsets of 100 items. Kappa scores of 0.7 were used as the accepted threshold, and, where consistency checks produced values below this, reviewers discussed their choices and repeated the process (using a new subset) until a suitable score was achieved.

For WoS- and CAB-derived literature, basic inclusion criteria were that studies documented one or more external interventions aiming to achieve progress towards one

or more non-environmental SDG targets, and used a forest-related measure as an outcome variable. Explicit mention of the SDGs or its targets was not required. For GS searches, inclusion was not limited to studies looking at specific interventions, and included any item that made reference to a target-related topic with some indication of expected/observed forest impacts.

As the WoS and CAB searches focused on intervention-related studies with observed impacts, in addition to the criteria listed below, which applied to all searches, we also excluded from these searches studies based solely on predictive modelling or speculative (i.e. non-empirical) outcomes, and cases where interventions sought to achieve multiple goals or targets at the same time, making identification of target-specific impacts not possible. This included large-scale resettlement/transmigration programmes, which, in addition to presenting problems of target-level impact identification, often fail to meet their development objectives (Carvalho et al., 2002), may be influenced by private sector interests (especially large agri-business) (Steward, 2007), and/or can result in human rights violations (Baird and Shoemaker, 2007; Fearnside, 1997). Nevertheless, we acknowledge the roles that such schemes play in forest dynamics and human development, and, in many cases, the recommendations made in our main article are still applicable.

Throughout all searches, the following criteria were applied:

- Publications focusing on payments for ecosystem services (PES), reducing emissions from deforestation and degradation (REDD) or 'alternative livelihoods' schemes, which were all deemed environmental, were excluded, unless explicit mention was given to a specific development component that did not depend upon the achievement of a forest- or conservation-related outcome for the scheme's success.
- Publications documenting community-based natural resource management and related schemes (e.g. participatory forest management, joint forest management etc.) were included, provided reference was made to an explicit development objective deemed independent and not reliant upon the achievement of a forest- or conservation-related outcome for its success.

- Publications in languages other than English were excluded, due to a lack of linguistic capacity required for their inclusion among the project team. However, publications with titles given in English but with indication that the main text is in a different language (e.g. "*Agriculture in the Dolisie region, Congo: situation and perspectives on development - the case of a small peripheral town. [French]*") were investigated further to ensure that English language versions were not lost in the process of removing duplicates.

- Relevant special journal issues encountered in the review process were included and all featured articles were considered.

- Other review and synthesis articles were included.

We took an inclusive approach to uncertainty, meaning that publications with titles or abstracts that did not explicitly mention, but could still feasibly meet, all of the above criteria were included for later inspection.

Information extraction and processing

In addition to basic information on each relevant publication (author, year etc.) the following information was collected for each:

- SDG target (and goal) receiving focus. Each target encountered represented a single row in our dataset.

- 'Direction' of the impact identified (beneficial, damaging, mixed, negligible or unknown) (details given in main article).

- The level of confidence associated with each record. Criteria for the three categories is as follows:

  o *Poor* = Based on assumptions or theories only, including predictive models and anticipated impacts. Examples of poor confidence impacts encountered in our review include the work of Chapman et al. (2015), who suggest, but do not demonstrate, that provision of health care can improve community perceptions (and therefore efficacy) of protected

areas; the work of Bashaasha et al (2001)(Bashaasha et al., 2001), whose predictive models suggest that agricultural intensification would reduce forest loss; or the work of Cornet et al. (2018), who anticipated the damaging forest impacts of a new railway link in the UK, which is yet to be built.

o *Fair* = Based on either: (a) Models that show a correlation between observed progress towards achievement of a goal, or samples that reflect different stages of achievement (e.g. national indicators), and forest change, but with confounding or mediating factors; and/or (b) observations of forest impacts based on qualitative reports or proxy measures (e.g. fuelwood used per household, numbers of people engaged in forest damaging activities etc.). We can illustrate this with the findings of Swinton and Quiroz (2003), who used multiple regression to show that increased levels of education reduced households *reported* likelihood of cutting trees, but that this was only one of several contributing factors, which also included households' physical assets, access to credit, and distance to a paved road, among others.

o *Good* = Direct observation of forest changes arising from progress towards achievement of a goal, or samples that reflect different stages of achievement (e.g. national indicators). Among the clearest examples of this category are cases where hard infrastructure, such as hydroelectric dams (Fearnside, 2005), observably results in removal or flooding of forest for its development. A perhaps less obvious illustration is the work of Belay et al. (2015), who showed a direct link between forest regrowth around selected Ethiopian villages (based on remotely sensed images) and the provision of food aid to tackle hunger and malnutrition.

Literature that provided second-hand (i.e. cited from other sources) records of impacts were earmarked, and confidence levels assigned once all other data collection was complete. This process involved noting the original citation and, where necessary, inspecting the original source for clarification. This was done to avoid duplication of records (i.e. where two or more sources cited the same

impact from the same source). Accordingly, if the same source was cited more than once, or if it was already present in our data, it was included only once in our final dataset. This approach, similar to the 'snowball' method, was used only to clarify details of the impact cited in the original citing source, and so we did not consider all records from secondary sources ad infinitum.

- Relevant notes on the impact recorded, including mechanisms by which the impact occurs and any caveats associated with the source material.
- Whether the observed impact was associated with a external intervention.
- Any multi-target impacts recorded or suggested in the paper. This component, however, was not conducted systematically and can only be used for illustrative purposes.

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Belay, K.T., Van Rompaey, A., Poesen, J., Van Bruyssel, S., Deckers, J., Amare, K., 2015. Spatial Analysis of Land Cover Changes in Eastern Tigray (Ethiopia) from 1965 to 2007: Are There Signs of a Forest Transition? L. Degrad. Dev. 26, 680–689. doi:10.1002/ldr.2275

Carvalho, G.O., Nepstad, D., McGrath, D., Del Carmen Vera Diaz, M.M., Santilli, M., Barros, A.C., 2002. Frontier expansion in the Amazon: Balancing development and sustainability. Environment 44, 34–45. doi:10.1080/00139150209605606

Chapman, C.A., van Bavel, B., Boodman, C., Ghai, R.R., Gogarten, J.F., Hartter, J., Mechak, L.E., Omeja, P.A., Poonawala, S., Tuli, D., Goldberg, T.L., 2015. Providing health care to improve community perceptions of protected areas. Oryx 49, 636–642. doi:10.1017/s0030605313001592

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Fearnside, P.M., 2005. Brazil's Samuel Dam: Lessons for hydroelectric development policy and the environment in Amazonia. Environ. Manage. 35, 1–19. doi:10.1007/s00267-004-0100-3

Fearnside, P.M., 1997. Transmigration in Indonesia: Lessons from its environmental and social impacts. Environ. Manage. 21, 553–570.

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Pullin, A.S., Stewart, G.B., 2006. Guidelines for systematic review in conservation and environmental management. Conserv. Biol. 20, 1647–1656. doi:10.1111/j.1523-1739.2006.00485.x

Steward, C., 2007. From colonization to "environmental soy": A case study of environmental and socio-economic valuation in the Amazon soy frontier. Agric. Human Values 24, 107–122. doi:10.1007/s10460-006-9030-4

Swinton, S.M., Quiroz, R., 2003. Is poverty to blame for soil, pasture and forest degradation in Peru's Altiplano? World Dev. 31, 1903–1919. doi:10.1016/j.worlddev.2003.06.004

A.2. Supplementary results

Table A.1. Target level breakdown of all findings (note: all table rows span two pages).

| SDG target | Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible) | | | | | | | | | | | | | Total records | Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1) | | | Overall direction | Overall confidence |
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
Goal 1: End poverty in all its forms everywhere														107					
1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day	2	3	0	0	0	3	0	1	2	0	1	0	0	12	0.32	-3	2.1	Mixed	High
1.2 By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions	1	2	0	0	2	3	0	2	2	0	0	0	0	12	0.21	-3.2	2.2	Mixed	High

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
1.1	Definitions of poverty can be ambiguous, precluding easy identification of forest impacts. This component only considers efforts to increase the monetary income of poor people and households. Evidence suggests mainly mixed impacts, but one intervention paper demonstrates that an increase in income leads to increased consumption (including of forest products) with negative impacts.	1. Wunder, S. Poverty Alleviation and Tropical Forests—What Scope for Synergies? World Dev. 29, 1817–1833 (2001). 2. Barbier, E. B. Poverty, development, and environment. Environ. Dev. Econ. 15, 635–660 (2010). 3. Redo, D. J., Grau, H. R., Aide, T. M. & Clark, M. L. Asymmetric forest transition driven by the interaction of socioeconomic development and environmental heterogeneity in Central America. Proc. Natl. Acad. Sci. U. S. A. 109, 8839–8844 (2012). 4. Sandker, M., Ruiz-Perez, M. & Campbell, B. M. Trade-offs between biodiversity conservation and economic development in five tropical forest landscapes. Environ. Manage. 50, 633–644 (2012).	Yes, three papers. One scheme aimed to increase the income (as well as other factors) of the poorest households across Mexico, and two schemes aimed to increase the income and food self-sufficiency of poor farmers. All had damaging impacts.	1. Alix-Garcia, J., McIntosh, C., Sims, K. R. E. & Welch, J. R. The ecological footprint of poverty alleviation: Evidence from Mexico's Oportunidades Program. Rev. Econ. Stat. 95, 417–435 (2013). 2. Klepeis, P. & Vance, C. Neoliberal policy and deforestation in southeastern Mexico: An assessment of the PROCAMPO program. Econ. Geogr. 79, 221–240 (2003). 3. Muneer, S. E. T. & Musa, A. A. Agricultural development and environmental problems in Sudan. The case of EN Nahud Cooperative Credit Project in Kordofan State, Sudan. Sci. Total Environ. 166, 55–60 (1995).
1.2	Definitions of poverty can be ambiguous, precluding easy identification of forest impacts. In addition to efforts to increase the income of poor people, this component also considered other types of 'wealth' (e.g. access to basic household goods), as well as matters of self sufficiency (e.g. ability to produce enough food) and indices such as the UN's Human Development Index. Evidence suggests mainly mixed impacts, but one intervention paper demonstrates that an increas in income leads to increased consumption (including of forest products) with negative impacts.	1. Wunder, S. Poverty Alleviation and Tropical Forests—What Scope for Synergies? World Dev. 29, 1817–1833 (2001). 2. Barbier, E. B. Poverty, development, and environment. Environ. Dev. Econ. 15, 635–660 (2010). 3. Caviglia-Harris, J. L. Household production and forest clearing: the role of farming in the development of the Amazon. Environ. Dev. Econ. 9, 181–202 (2004). 4. Illukpitiya, P. & Yanagida, J. F. Role of income diversification in protecting natural forests: Evidence from rural households in forest margins of Sri Lanka. Agrofor. Syst. 74, 51–62 (2008).	As for 1.1	As for 1.1

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)													Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)			Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
1.3 Implement nationally appropriate social protection systems and measures for all, including floors, and by 2030 achieve substantial coverage of the poor and the vulnerable	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA
1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance	32	8	8	2	3	5	2	5	5	0	0	1	1	72	9.12	-5.32	5.52	Mixed	High
1.5 By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters	4	1	0	1	1	4	0	0	0	0	0	0	0	11	0.14	-4.11	0	Damaging	High

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
1.3	No info found			
1.4	Literature predominantly relates to tenure secuitry of land and property, and to a lesser extent on increasing access to finance and agricultural technologies. All show mixed impacts. Depending on context and other factors landowners may choose to use their new resources to either exploit or conserve forest resources. With few exceptions, information on tenure has higher associated confidence than other factors.	1. Agricultural Technologies and Tropical Deforestation. (CABI Publishing and CIFOR, 2001). doi:10.3362/9781780446097.001 2. Kaimowitz, D. & Angelsen, A. Economic models of tropical deforestation: a review. (CIFOR, 1998). doi:10.17528/cifor/000341 3. Naughton-Treves, L. & Wendland, K. Land Tenure and Tropical Forest Carbon Management. World Dev. 55, 1–6 (2014). 4. Travers, H., Winney, K., Clements, T., Evans, T. & Milner-Gulland, E. J. A tale of two villages: An investigation of conservation-driven land tenure reform in a Cambodian Protection Forest. Land use policy 43, 186–196 (2015).	Yes, three papers: two on securing indigenous land rights and one on provision of agricultural credit. Papers on land rights showed damaging and negligible impacts. Paper on credit showed damaging impacts.	1. Muneer, S. E. T. & Musa, A. A. Agricultural development and environmental problems in Sudan. The case of EN Nahud Cooperative Credit Project in Kordofan State, Sudan. Sci. Total Environ. 166, 55–60 (1995). 2. BenYishay, A., Heuser, S., Runfola, D. & Trichler, R. Indigenous land rights and deforestation: Evidence from the Brazilian Amazon. J. Environ. Econ. Manage. 86, 29–47 (2017). 3. Yang, X., Xu, J., Xu, X., Yi, Y. & Hyde, W. F. Collective forest tenure reform and household energy consumption: A case study in Yunnan Province, China. China Econ. Rev. 1–14 (2018).
1.5	Observed impacts are mostly intervention-related relate (see final columns). Theoretical works suggest that because economic shocks can lead to greater reliance on (and hence overexploiation of) forest resources, reducing vulnerability to such shocks will be favourable for forests. However, this has not been demonstrated empirically.	1. Sunderlin, W. D., Angelsen, A., Resosudarmo, D. P., Dermawan, A. & Rianto, E. Economic crisis, small farmer well-being, and forest cover change in Indonesia. World Dev. 29, 767–782 (2001). 2. Völker, M. & Waibel, H. Do rural households extract more forest products in times of crisis? Evidence from the mountainous uplands of Vietnam. For. Policy Econ. 12, 407–414 (2010). 3. Debela, B., Shively, G., Angelsen, A. & Wik, M. Economic shocks, diversification, and forest use in Uganda. Land Econ. 88, 139–154 (2012).	Yes, three papers: one a credit programme to protect drought-prone farmers, one providing income support to farmers to help overcome an economic crisis, and one documenting a dam to help control flooding (among other purposes). All had damaging impacts.	1. Muneer, S. E. T. & Musa, A. A. Agricultural development and environmental problems in Sudan. The case of EN Nahud Cooperative Credit Project in Kordofan State, Sudan. Sci. Total Environ. 166, 55–60 (1995). 2. Klepeis, P. & Vance, C. Neoliberal policy and deforestation in southeastern Mexico: An assessment of the PROCAMPO program. Econ. Geogr. 79, 221–240 (2003). 3. Irving, G. J., Round, P. D., Savini, T., Lynam, A. J. & Gale, G. A. Collapse of a tropical forest bird assemblage surrounding a hydroelectric reservoir. Glob. Ecol. Conserv. 16, e00472 (2018).

| SDG target | Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible) | | | | | | | | | | | | | Total records | Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1) | | | Overall direction | Overall confidence |
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
1.a Ensure significant mobilization of resources from a variety of sources, including through enhanced development cooperation, in order to provide adequate and predictable means for developing countries, in particular least developed countries, to implement programmes and policies to end poverty in all its dimensions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA
1.b Create sound policy frameworks at the national, regional and international levels, based on pro-poor and gender-sensitive development strategies, to support accelerated investment in poverty eradication actions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA
Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture														81					
2.1 By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round	1	3	1	2	0	0	3	0	0	0	1	0	0	11	1.31	-0.02	0.03	Beneficial	High

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
1.a	No info found			
1.b	No info found			
2.1	In addtion to the one intervention-related observation (see last columns), several other studies provide evidence that reducing hunger can benefit forests, mainly through provision of agricultural subsidies, which reduced the need to extract forest products. Other works typically cite the land sharing/sparing debate, in which the choice of approach to increasing food production can either encroach into natural areas or not, depending on the methods used.	1. Chibwana, C., Jumbe, C. B. L. & Shively, G. Agricultural subsidies and forest clearing in Malawi. Environ. Conserv. 40, 60–70 (2013). 2. Tscharntke, T. et al. Global food security, biodiversity conservation and the future of agricultural intensification. Biol. Conserv. 151, 53–59 (2012). 3. Fischer, J. et al. Reframing the Food–Biodiversity Challenge. Trends Ecol. Evol. 32, 335–345 (2017).	Yes, one record documents a food aid program which reduced the need for agricultural expansion into forests (same as for 2.2).	1. Belay, K. T. et al. Spatial Analysis of Land Cover Changes in Eastern Tigray (Ethiopia) from 1965 to 2007: Are There Signs of a Forest Transition? L. Degrad. Dev. 26, 680–689 (2015).

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)													Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)			Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
2.2 By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons	1	2	1	0	0	0	2	0	0	0	1	0	1	8	1.21	0	0.02	Beneficial	High
2.3 By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment	4	6	0	13	4	20	6	3	2	0	1	0	0	59	0.64	-20.53	2.36	Damaging	High
2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality	ENVIRONMENTAL																		

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
2.2	Findings are largely the same as for target 2.1 (see above), but excludes records that don't make specific reference to (mal)nutrition.	As for 2.1	Yes, one record documents a food aid program which reduced the need for agricultural expansion into forests (same as for 2.1).	1. Belay, K. T. et al. Spatial Analysis of Land Cover Changes in Eastern Tigray (Ethiopia) from 1965 to 2007: Are There Signs of a Forest Transition? L. Degrad. Dev. 26, 680–689 (2015).
2.3	Strong evidence to suggest that increasing food production affects forests, whether through expansion of agriculture or through processes such as dams to provide irrigation. Some sources suggest that intensification of agriculture rather than expansion could help to conserve forests, but evidence for this is weak in comparison.	1. Agricultural Technologies and Tropical Deforestation. (CABI Publishing and CIFOR, 2001). doi:10.3362/9781780446097.001 2. Knauer, K., Gessner, U., Fensholt, R., Forkuor, G. & Kuenzer, C. Monitoring agricultural expansion in Burkina Faso over 14 years with 30 m resolution time series: The role of population growth and implications for the environment. Remote Sens. 9, (2017). 3. Franks, P. et al. Reconciling forest conservation with food production in sub-Saharan Africa: case studies from Ethiopia, Ghana and Tanzania. (2017).	Yes, ten records. Eight records (of which two focus on the same intervention: the Mega Rice Project in Indonesia) show forest damage arising from either (a) inundation of forested areas to provide irrigation water or produce paddy fields, or (b) expansion of agricultural areas into forests following provision of financial support to farmers. Two records, both looking at the development of irrigation in lowland areas in the Philippines, give qualitative reports of reduced rates of forest clearing in uplands as farmers take on employment on lowland farms.	1. Shively, G. & Pagiola, S. Agricultural intensification, local labor markets, and deforestation in the Philippines. Environ. Dev. Econ. 9, 241–266 (2004). 2. Medrilzam, M., Dargusch, P., Herbohn, J. & Smith, C. The socio-ecological drivers of forest degradation in part of the tropical peatlands of Central Kalimantan, Indonesia. Forestry 87, 335–345 (2014). 3. Massart, M., Petillon, M. & Wolff, E. The impact of an agricultural development project on a tropical forest environment: the case of Shaba (Zaire). PE&RS, Photogramm. Eng. Remote Sens. 61, 1153–1158 (1995).
2.4				

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)													Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)			Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
2.5 By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA
2.a Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries	0	0	0	1	0	0	1	0	1	0	0	0	0	3	0	-0.01	1.01	Mixed	High

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
2.5	No info found			
2.a	All records relate to agricultural technologies, and suggest that impacts can be mixed. In some cases farmers use new technology to intensify agriculture, requiring less land, and in other cases new technology is used to expand into new areas (including forest)	1. Agricultural Technologies and Tropical Deforestation. (CABI Publishing and CIFOR, 2001). doi:10.3362/9781780446097.001 2. Cattaneo, A. Deforestation in the Brazilian Amazon : Comparing the Impacts of Macroeconomic Shocks , Land Tenure , and Technological Change. Land Econ. 77, 219–240 (2001). 3. Van Soest, D. P., Bulte, E. H., Angelsen, A. & Van Kooten, G. C. Technological change and tropical deforestation: A perspective at the household level. Environ. Dev. Econ. 7, 269–280 (2002).	No	NA

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)												Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)			Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
2.b Correct and prevent trade restrictions and distortions in world agricultural markets, including through the parallel elimination of all forms of agricultural export subsidies and all export measures with equivalent effect, in accordance with the mandate of the Doha Development Round	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA
2.c Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA
Goal 3: Ensure healthy lives and promote well-being for all at all ages														32					
3.1 By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births	0	0	0	1	0	0	0	0	0	0	0	0	1	2	0	-0.01	0	Damaging	Low

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
2.b	No info found			
2.c	No info found			
3.1	Only one record found, which suggests that reduced mortality leads to increased populations and hence more demand for forest resources (including land). A second record implies that improving human health could be good for forests, but ultimately concludes that little is known on this subject.	1. de Jong, W. et al. Amazon Forests at the Crossroads: Pressures, Responses and Challenges. in Forests and society – responding to global drivers of change (eds. Mery, G. et al.) 283–298 (IFURO, 2010). 2. Colfer, C. J. P., Sheil, D., Kaimowitz, D. & Kishi, M. Forests and human health in the tropics: Some important connections. Unasylva 57, 3–10 (2006).	No	NA

| SDG target | Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible) | | | | | | | | | | | | | Total records | Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1) | | | Overall direction | Overall confidence |
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
3.2 By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births	1	0	0	1	0	0	0	0	0	0	0	0	1	3	0.01	-0.01	0	Mixed	Low
3.3 By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases 3.4	0	0	0	1	0	2	0	0	0	0	0	0	1	4	0	-2.01	0	Damaging	High
3.4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being	0	0	0	1	0	0	0	0	0	0	0	0	1	2	0	-0.01	0	Damaging	Low

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
3.2	Same as for 3.1, but with an additional study which negatively correlates child mortality with deforestation, but gives no insights into mechanisms or reasons why.	1. Redo, D. J., Grau, H. R., Aide, T. M. & Clark, M. L. Asymmetric forest transition driven by the interaction of socioeconomic development and environmental heterogeneity in Central America. Proc. Natl. Acad. Sci. U. S. A. 109, 8839–8844 (2012).	No	NA
3.3	Similar to 3.1, but also contains two intervention-associated records (see last columns).	As for 3.1	Yes, two records of damaging impacts from schemes involving vegetation removal to eradicate tsetse flies and onchocerciasis	1. Baldry, D., Calamari, D. & Yameogo, L. Environmental Impact Assessment of Settlement and Development in the Upper Leraba Basin: Burkina Faso, Cote d'Ivoire, and Mali. (World Bank Group, 1995). 2. Nash, T. A. M. The Anehau Rural Development and Settlement Scheme. (London : Published for the Colonial Office by H. M. Stationery Office., 1948).
3.4	As for 3.1	As for 3.1	No	NA

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)													Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)			Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
3.5 Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol	1	0	0	1	0	3	0	0	0	0	0	1	0	6	0.01	-3.01	0	Damaging	High
3.6 By 2020, halve the number of global deaths and injuries from road traffic accidents	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA
3.7 By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes	5	0	0	0	0	0	0	0	0	0	0	0	0	5	0.05	0	0	Beneficial	Low

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
3.5	All six records relate to large scale drug eradication programs; 5 from South America (coca) and one from Cambodia (sassafras oil). All South American records suggest damaging impacts, while the Cambodian study suggests, but does not demonstrate, that reducing narcotics crime would result in reduced forest loss.	1. Rincón-Ruiz, A., Correa, H. L., León, D. O. & Williams, S. Coca cultivation and crop eradication in Colombia: The challenges of integrating rural reality into effective anti-drug policy. Int. J. Drug Policy 33, 56–65 (2016). 2. Bradfield, D. & Daltry, J. C. Progress in breaking the link between narcotics crime and rainforest loss in Cambodia. Cambodian J. Nat. Hist. 1, 5–6 (2009).	Yes, four records relating to coca eradication in Colombia/Bolivia. Two papers showed that deforestation increased after coca eradication as cultivators moved elsewhere or clear forest to maintain their incomes from other crops. One paper showed forest damage caused by spraying of defoliants. One paper found a negligible impact of eradication on rates of forest loss.	1. Bradley, A. V. & Millington, A. C. Coca and colonists: Quantifying and explaining forest clearance under coca and anti-narcotics policy regimes. Ecol. Soc. 13, (2008). 2. Dávalos, L. M. et al. Forests and drugs: Coca-driven deforestation in tropical biodiversity hotspots. Environ. Sci. Technol. 45, 1219–1277 (2011). 3. Rincón-Ruiz, A. & Kallis, G. Caught in the middle, Colombia's war on drugs and its effects on forest and people. Geoforum 46, 60–78 (2013). 4. Messina, J. P. & Delamater, P. L. Defoliation and the war on drugs in Putumayo, Colombia. Int. J. Remote Sens. 27, 121–128 (2006).
3.6	No info found			
3.7	Suggests that family planning can help reduce population growth, and that this will reduce demand for forest resources. However all records are theoretical only. All records are the same as for 5.6.	1. Ochieng, J., Oguttu, M., Solomon Orero, M. & Kitche Magak, M. Population and the environment: Linking community reproductive health to Kakamega forest conservation in Western Kenya. in The 132nd Annual Meeting (November 6-10, 2004) (2004). 2. Bryant, L., Carver, L., Butler, C. D. & Anage, A. Climate change and family planning: Least-developed countries define the agenda. Bull. World Health Organ. 87, 852–857 (2009). 3. Starbird, E., Norton, M. & Marcus, R. Investing in family planning: Key to achieving the sustainable development goals. Glob. Heal. Sci. Pract. 4, 191–210 (2016).	No	NA

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)													Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)			Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all	2	1	0	0	0	0	0	0	0	0	0	0	0	3	0.12	0	0	Beneficial	Low
3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	1	3	1	0	0	0	0	0	0	0	0	0	1	6	1.31	0	0	Beneficial	High
3.a Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.01	0	0	Beneficial	Low

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
3.8	Theories suiggest that improving health can facilitate conservation, especiallly in an ICDP context (e.g. improving people's perceptions of conservation activities by provifing health care). However, links between the two are not well substantiated.	1. Ali, R. & Jacobs, S. M. Saving the rainforest through health care: Medicine as conservation in Borneo. Int. J. Occup. Environ. Health 13, 295–311 (2007).\n2. Wan, M., Colfer, C. J. P. & Powell, B. Forests, women and health: opportunities and challenges for conservation. Int. For. Rev. 13, 369–387 (2011).\n3. Chapman, C. A. et al. Providing health care to improve community perceptions of protected areas. Oryx 49, 636–642 (2015).	No	NA
3.9	All evidence relates to efforts to improve household fuels to make them cleaner, including through improved cookstoves and biodigesters, which can both result in reduced usage of fuelwood.	See final column	Yes, four records. Two relating to biogas interventions and two to improved cookstoves. Three used proxy measures of forest change, and one (on biogas) used remote sensing imagery.	1. Wallmo, K. & Jacobson, S. K. A social and environmental evaluation of fuel-efficient cook-stoves and conservation in Uganda. Environ. Conserv. 25, 99–108 (1998).\n2. Gosens, J., Lu, Y., He, G., Bluemling, B. & Beckers, T. A. M. Sustainability effects of household-scale biogas in rural China. Energy Policy 54, 273–287 (2013).\n3. Dresen, E., DeVries, B., Herold, M., Verchot, L. & Müller, R. Fuelwood savings and carbon emission reductions by the use of improved cooking stoves in an afromontane forest, Ethiopia. Land 3, 1137–1157 (2014).\n4. Agarwala, M. et al. Impact of biogas interventions on forest biomass and regeneration in southern India. Glob. Ecol. Conserv. 11, 213–223 (2017).
3.a	One study links tobacco cultivation to forest loss, implying that a reduction in the demand for tobacco would reduce loss of forests.	1. Jew, E., Dougill, A. & Sallu, S. Tobacco cultivation as a driver of land use change and degradation in the miombo woodlands of south-west Tanzania. Land Degradation & Development 28, (2017).	No	NA

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)													Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)				Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence			
3.b Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		Unknown	NA
3.c Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		Unknown	NA
3.d Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		Unknown	NA

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
3.b	No info found			
3.c	No info found			
3.d	No info found			

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)													Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)			Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all														45					
4.1 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes	2	5	2	0	2	0	1	2	0	0	1	0	0	15	2.52	-0.2	0.21	Beneficial	High
4.2 By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education	2	4	2	0	2	0	1	0	0	0	0	0	0	11	2.42	-0.2	0.01	Beneficial	High
4.3 By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university	1	3	1	0	2	0	1	0	0	0	1	0	0	9	1.31	-0.2	0.01	Beneficial	High

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
4,1	Several studies suggest that increasing basic education leads to less loss/ degradation of forests. Mechanisms are not well understood but thought to be related to movement out of the agricultural sector and/or rural areas, increased knowledge that facilitates agricultural intensification, and increased environmental awareness. However, some studies suggest (with lower confidence) that education can have mixed or even damaging impacts. For example, one record finds the opposing impacts at two locations, but notes that these findings may be complicated by high levels of unemployment, even among educated people, and another record suggest that increaseed levels of education lead farmer to engage in milk production rather than the less damaging arable farming.	1. Burns, T. J., Kick, E. L., Murray, D. A. & Murray, D. A. Demography, Development and Deforestation in a World-System Perspective. Int. J. Comp. Sociol. 35, 221–239 (1994). 2. Godoy, R. & Contreras, M. A Comparative Study of Education and Tropical Deforestation among Lowland Bolivian Amerindians: Forest Values, Environmental Externality, and School Subsidies. Econ. Dev. Cult. Change 49, 555–574 (2001). 3. Illukpitiya, P. & Yanagida, J. F. Role of income diversification in protecting natural forests: Evidence from rural households in forest margins of Sri Lanka. Agrofor. Syst. 74, 51–62 (2008). 4. Caviglia-Harris, J. L. Household production and forest clearing: the role of farming in the development of the Amazon. Environ. Dev. Econ. 9, 181–202 (2004).	No	NA
4.2	As for 4.1, but excludes papers that make specific reference to primary or secondary education only.	As for 4.1, but excludes papers that make specific reference to primary or secondary education only.	No	NA
4.3	Evidence suggests that the greater the level of education achieved, the less likely people/households are to engage in removal of trees. Mechanisms are not well understood, but likely the same as 4.1.	1. Ehrhardt-Martinez, K. Social Determinants of Deforestation in Developing Countries: A Cross-National Study. Soc. Forces 77, 567–586 (1998). 2. Getahun, K., Poesen, J. & Van Rompaey, A. Impacts of Resettlement Programs on Deforestation of Moist Evergreen Afromontane Forests in Southwest Ethiopia. Mt. Res. Dev. 37, 474–486 (2017).	No	NA

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)													Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)			Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
4.4 By 2030, substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship	2	2	0	0	0	0	1	0	0	0	0	0	0	5	0.22	-0.01	0	Beneficial	Low
4.5 By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.01	0	0	Beneficial	Low
4.6 By 2030, ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy	2	2	0	0	0	0	0	0	0	0	0	0	0	4	0.22	0	0	Beneficial	Low

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
4.4	Some evidence to suggest that increasing technical and vocational skills can help reduce forest loss. This mainly relates to targets 8.3 and 8.5, whereby a better educated workforce is able to work in the non-agricultural sector, which can reduce forest impacts associated with agricultural expansion.	1. Baland, J.-M., Bardhan, P., Das, S., Mookherjee, D. & Sarkar, R. Managing the Environmental Consequences of Growth: Forest Degradation in the Indian mid-Himalayas. India Policy Forum 3, 215–277 (2006). 2. Koop, G. & Tole, L. Measuring differential forest outcomes: A tale of two countries. World Dev. 25, 2043–2056 (1997). 3. Swinton, S. M., Escobar, G. & Reardon, T. Poverty and environment in Latin America: Concepts, evidence and policy implications. World Dev. 31, 1865–1872 (2003). 4. Jorgenson, A. K. & Burns, T. J. Effects of rural and urban population dynamics and national development on deforestation in less-developed countries, 1990-2000. Sociol. Inq. 77, 460–482 (2007).	No	NA
4.5	One records that states "women's rights to […] education can ease population pressures on forests thereby supporting broader conservation efforts", but no further information given on mechanisms or reasons why.	1. Arnold, M., Powell, B., Shanley, P. & Sunderland, T. C. H. EDITORIAL: Forests, biodiversity and food security. Int. For. Rev. 13, 259–264 (2011).	No	NA
4.6	Four records found which suggest links between literacy and deforestation, including two which demonstrate a negative relationship, albeit with other factors implicated. Mechanisms involved in this relationship are not clear, but suggested reasons include a resultant greater awareness of environmental issues and an improved abiility to participates in community-led programs, such as joint forest management.	1. Faham, E., Rezvanfar, A. & Shamekhi, T. Analysis of socio-economic factors influencing forest dwellers' participation in reforestation and development of forest areas (the case study of west Mazandaran, Iran). Am. J. Agric. Biol. Sci. 3, 438–443 (2008). 2. Getahun, K., Poesen, J. & Van Rompaey, A. Impacts of Resettlement Programs on Deforestation of Moist Evergreen Afromontane Forests in Southwest Ethiopia. Mt. Res. Dev. 37, 474–486 (2017). 3. Singh, M. P., Bhojvaid, P. P., de Jong, W., Ashraf, J. & Reddy, S. R. Forest transition and socio-economic development in India and their implications for forest transition theory. For. Policy Econ. 76, 65–71 (2017). 4. D'Silva, E. & Pai, S. Social Capital and Collective Action: Development Outcomes in Forest Protection and Watershed Development. Econ. Polit. Wkly. 38, 1404–1415 (2003).	No	NA

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)														Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)			Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown			Beneficial confidence	Damaging confidence	Mixed confidence		
4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	Unknown	NA
4.a Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	Unknown	NA
4.b By 2020, substantially expand globally the number of scholarships available to developing countries, in particular least developed countries, small island developing States and African countries, for enrolment in higher education, including vocational training and information and communications technology, technical, engineering and scientific programmes, in developed countries and other developing countries	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	Unknown	NA

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
4.7	No info found			
4.a	No info found			
4.b	No info found			

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)													Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)			Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
4.c By 2030, substantially increase the supply of qualified teachers, including through international cooperation for teacher training in developing countries, especially least developed countries and small island developing States	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA
Goal 5: Achieve gender equality and empower all women and girls														19					
5.1 End all forms of discrimination against all women and girls everywhere	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.01	0	0	Beneficial	Low
5.2 Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA
5.3 Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
4,c	No info found			
5.1	One record states "There is a need for women to exercise more control over the resources they use in order for them to realize their full potential as development agents. Ignoring the roles of women as resource users will lead to the failure of conservation programmes". No empirical study supports this. Same as for 5.a.	1. Policies and governance structures in woodlands of Southern Africa. (CIFOR, 2003).	No	NA
5.2	No info found			
5.3	No info found			

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)													Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)			Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
5.4 Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA
5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life	4	2	4	1	0	0	0	0	1	0	0	0	0	12	4.24	-0.01	1	Mixed	High
5.6 Ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Programme of Action of the International Conference on Population and Development and the Beijing Platform for Action and the outcome documents of their review conferences	5	0	0	0	0	0	0	0	0	0	0	0	0	5	0.05	0	0	Beneficial	Low

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
5.4	No info found			
5.5	Strong evidence to suggest that increasing women's representation in decision-making authorities can have benefits for conservation. Two records exist that disagree with this: one observational study suggests that greater involvement of women in landscape level decision making results in greater loss and degradation of forests, and another which suggest that higher proportions of females in user groups, and especially user groups dominated by females, perform less well than mixed groups or male dominated ones in terms of likelihood of adopting forest resource enhancing behavior. Importantly, this is attributed to other aspects of gender equality such as "gender biases in technology access and dissemination, a labor constraint faced by women, and a possible limitation to women's sanctioning authority".	1. Agrawal, A., Yadama, G., Andrade, R. & Bhattacharya, A. Decentralization and environmental conservation: Gender effects from participation in joint forest management. Int. Res. Work. 'Gender Collect. Action' 1–62 (2006). 2. Agarwal, B. Gender and forest conservation: The impact of women's participation in community forest governance. Ecol. Econ. 68, 2785–2799 (2009). 3. Mwangi, E., Meinzen-Dick, R. & Sun, Y. Gender and sustainable forest management in East Africa and Latin America. Ecol. Soc. 16, (2011). 4. Leisher, C. et al. Does the gender composition of forest and fishery management groups affect resource governance and conservation outcomes? A systematic map. Environ. Evid. 5, 1–10 (2016).	No	NA
5.6	As for 3.7	As for 3.7	No	NA

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)													Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)			Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
5.a Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.01	0	0	Beneficial	Low
5.b Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA
5.c Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA
Goal 6: Ensure availability and sustainable management of water and sanitation for all														27					
6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all	0	0	0	4	2	3	0	0	0	0	0	0	0	9	0	-3.24	0	Damaging	High

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
5.a	As for 5.1	As for 5.1	No	NA
5.b	No info found			
5.c	No info found			
6.1	Six of eight records relate to hard infrastructure (dams and water treatment plants) built to provide reliable clean water supplies. One record finds positive correlations between reliance on pit latrines and likelihood or reforestion, and conversely, between access to piped water and likelihood of deforestation, suggesting a link between increased living standards and forest clearance. One record suggests that increased need for water for irrigation and drinking will affect forest hydrology.	1. Pringle, C. M. Threats to U.S. public lands from cumulative hydrologic alterations outside of their boundaries. Ecol. Appl. 10, 971–989 (2000). 2. Arias, M. E. et al. Quantifying changes in flooding and habitats in the Tonle Sap Lake (Cambodia) caused by water infrastructure development and climate change in the Mekong Basin. J. Environ. Manage. 112, 53–66 (2012). 3. Perry, D. M. & Praskievicz, S. J. A new era of big infrastructure? (re)developing water storage in the U.S. west in the context of climate change and environmental regulation. Water Altern. 10, 437–454 (2017).	Yes, one record documents damaging impacts of a dam built in response to a 'water crisis' in Malaysia's Klang Valley.	1. Aiken, S. R. & Leigh, C. H. Dams and indigenous peoples in Malaysia: Development, displacement and resettlement. Geogr. Ann. Ser. B Hum. Geogr. 97, 69–93 (2015).

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)													Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)			Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations	2	1	0	2	1	0	0	0	0	1	0	0	0	7	0.21	-0.21	0	Mixed	Low
6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally	5	0	0	0	1	0	0	0	0	3	0	0	0	9	0.05	-0.1	0	Mixed	Low

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
6.2	Two papers state that open defecation is polluting mangroves suggesting that reducing this would lead to improvments. Two papers look at hard infrastructure for sewage removal and treatment, one of which describes damage to forests, and the other describes negligable impacts due to good planning. One paper correlates reliance on pit latrines with a lower tendency to deforest. One paper shows the percentage of houses in a parish with a sewer is negatively related to deforestation. One paper suggests that the increase in wood required to fire bricks for latrine construction could impact forests.	1. Rakotomavo, A., Rasoamanarivo, R. M. M. & Razanajaza, P. Impact of Urban Anthropogenic Pressures on the Mangrove Forest of Sainte Marie (East Madagascar). Open J. For. 08, 380–392 (2018). 2. Benfield, S. L., Guzman, H. M. & Mair, J. M. Temporal mangrove dynamics in relation to coastal development in Pacific Panama. J. Environ. Manage. 76, 263–276 (2005). 3. Newman, M. E., McLaren, K. P. & Wilson, B. S. Long-term socio-economic and spatial pattern drivers of land cover change in a Caribbean tropical moist forest, the Cockpit Country, Jamaica. Agric. Ecosyst. Environ. 186, 185–200 (2014). 4. Maughn, A. S. & Harris, L. Planning a sanitary sewer trunk line while trying to protect a forest preserve. Pipelines 2009 Infrastructure's Hidden Assets - Proc. Pipelines 2009 Conf. 360, 1497–1504 (2009).	No	NA
6.3	Several records show that wastewater pollution has negative forest impacts (especially on mangroves), suggesting that improving water treatment will be beneficial, though no actual demonstrations of this were found. Three records suggest negligible impacts. One observation shows that the building of a water treatment plant damaged mangroves.	1. Cheevaporn, V. & Menasveta, P. Water pollution and habitat degradation in the Gulf of Thailand. Mar. Pollut. Bull. 47, 43–51 (2003). 2. Herteman, M., Fromard, F. & Lambs, L. Effects of pretreated domestic wastewater supplies on leaf pigment content, photosynthesis rate and growth of mangrove trees: A field study from Mayotte Island, SW Indian Ocean. Ecol. Eng. 37, 1283–1291 (2011). 3. Benfield, S. L., Guzman, H. M. & Mair, J. M. Temporal mangrove dynamics in relation to coastal development in Pacific Panama. J. Environ. Manage. 76, 263–276 (2005).	No	NA

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)													Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)			Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0.02	0	0	Beneficial	Low
6.5 By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate	ENVIRONMENTAL																		
6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes	ENVIRONMENTAL																		
6.a By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
6.4	Two papers suggest that inefficient use of water resources is a threat to forests, suggesting (but not demonstrating) that improving efficiency will benefit forests.	1. Qi, F. et al. Environmental effects of water resource development and use in the Tarim River basin of northwestern China. Environ. Geol. 48, 202–210 (2005). 2. Pittock, J. & Lankford, B. A. Environmental water requirements: Demand management in an era of water scarcity. J. Integr. Environ. Sci. 7, 75–93 (2010).	No	NA
6.a	No info found			

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)													Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)			Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
6.b Support and strengthen the participation of local communities in improving water and sanitation management	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA
Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all														249					
7.1 By 2030, ensure universal access to affordable, reliable and modern energy services	11	6	4	13	5	30	0	1	1	0	4	0	3	78	4.71	-30.63	1.1	Mixed	High
7.2 By 2030, increase substantially the share of renewable energy in the global energy mix	2	1	4	23	6	46	1	0	0	1	0	2	2	88	4.12	-46.83	0.01	Mixed	High

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
6.b	No info found			
7.1	Papers fall mainly into two categories: (1) papers looking at clean fuel options, mostly being improved cookstoves and biogas digesters which reduce the need for woodfuel to meet household energy needs; and (2) papers looking at impacts of infrastructure (especially hydroelectric dams, and to a lesser extent transmission lines), which typically have negative impact. Large overlap with 7.2 and 7.b	1. DeFries, R. & Pandey, D. Urbanization, the energy ladder and forest transitions in India's emerging economy. Land use policy 27, 130–138 (2010). 2. Bensch, G. & Peters, J. Alleviating deforestation pressures? Impacts of improved stove dissemination on charcoal consumption in urban senegal. Land Econ. 89, 676–698 (2013). 3. Lees, A. C., Peres, C. A., Fearnside, P. M., Schneider, M. & Zuanon, J. A. S. Hydropower and the future of Amazonian biodiversity. Biodivers. Conserv. 25, 451–466 (2016). 4. Li, X. & Lin, Y. Do high-voltage power transmission lines affect forest landscape and vegetation growth: Evidence from a case for southeastern of China. Forests 10, 1–13 (2019).	Yes, multiple papers with similar foci to the wider set for this target.	1. Dresen, E., DeVries, B., Herold, M., Verchot, L. & Müller, R. Fuelwood savings and carbon emission reductions by the use of improved cooking stoves in an afromontane forest, Ethiopia. Land 3, 1137–1157 (2014). 2. Meeks, R., Sims, K. R. E. & Thompson, H. Waste Not: Can Household Biogas Deliver Sustainable Development? Environ. Resour. Econ. 72, 763–794 (2019). 3. Ruchiyat, Y. Development of a geothermal power plant and nature conservation in Kamojang, West Java. Sustain. Rural Dev. Asia. Proc. SUAN IV Reg. Symp. agroecosystem Res. held Khon Kaen Univ. July 4-7, 1988 (1988). 4. Fearnside, P. M. Environmental impacts of Brazil's Tucuruí Dam: Unlearned lessons for hydroelectric development in amazonia. Environ. Manage. 27, 377–396 (2001)
7.2	Largely overlaps with target 7.1 in terms of records and impacts, but excludes papers not looking at renewable energy sources and includes additional records where energy production is not necessarily intended for domestic use. Broad findings show damaging impacts from insfrastructure associated with most types of renewable energies, and beneficial impacts from household-level biogas.	1. Hastik, R. et al. Renewable energies and ecosystem service impacts. Renew. Sustain. Energy Rev. 48, 608–623 (2015). 2. Gibson, L., Wilman, E. N. & Laurance, W. F. How Green is 'Green' Energy? Trends Ecol. Evol. 32, 922–935 (2017). 3. Shrestha, I., Ghimire, P. & Bhatta, B. Contribution of biogas use on forest conservation. J. Agric. Nat. Resour. 2, 75–84 (2019). 4. Soliño, M., Prada, A. & Vázquez, M. X. Green electricity externalities: Forest biomass in an Atlantic European Region. Biomass and Bioenergy 33, 407–414 (2009).	Yes, multiple papers with similar foci to the wider set for this target.	1. Ruchiyat, Y. Development of a geothermal power plant and nature conservation in Kamojang, West Java. Sustain. Rural Dev. Asia. Proc. SUAN IV Reg. Symp. agroecosystem Res. held Khon Kaen Univ. July 4-7, 1988 (1988). 2. Tefera, B. & Sterk, G. Hydropower-Induced Land Use Change in Fincha'a Watershed, Western Ethiopia: Analysis and Impacts. Mt. Res. Dev. 28, 72–80 (2008). 3. Meeks, R., Sims, K. R. E. & Thompson, H. Waste Not: Can Household Biogas Deliver Sustainable Development? Environ. Resour. Econ. 72, 763–794 (2019). 4. Agarwala, M. et al. Impact of biogas interventions on forest biomass and regeneration in southern India. Glob. Ecol. Conserv. 11, 213–223 (2017).

| SDG target | Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible) | | | | | | | | | | | | | Total records | Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1) | | | Overall direction | Overall confidence |
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
7.3 By 2030, double the global rate of improvement in energy efficiency	11	2	2	0	1	0	0	0	0	0	0	0	0	16	2.31	-0.1	0	Beneficial	High
7.a By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA
7.b By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States and landlocked developing countries, in accordance with their respective programmes of support	7	3	5	13	3	35	0	0	0	0	0	0	1	67	5.37	-35.43	0	Mixed	High

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
7.3	Most records related to fuel-efficient cookstoves and/or biogas and suggest that, where uptake is good, impacts on forests can be beneficial. One record suggests that reforms to energy subisidies, designed to encourage transitions from kerosene to LPG at the household level, had negligible effects on fuelwood collection, and may have actually prevented local tobacco farmers from using kerosene to dry their crop, leading them to use forest-damaging wood fuel instead, although these impacts were based on narratives and so not well quantified.	1. Guo, X., Li, G. & Niu, S. Evaluation on the eco-economic benefits of rural energy construction project in west Qinling Mountains region, China. 2007 Int. Conf. Wirel. Commun. Netw. Mob. Comput. WiCOM 2007 5066–5069 (2007). doi:10.1109/WICOM.2007.1242 2. Barbieri, J., Riva, F. & Colombo, E. Cooking in refugee camps and informal settlements: A review of available technologies and impacts on the socio-economic and environmental perspective. Sustain. Energy Technol. Assessments 22, 194–207 (2017). 3. Makame, M. O. Adoption of improved stoves and deforestation in Zanzibar. Manag. Environ. Qual. An Int. J. 18, 353–365 (2007). 4. Lee, S. M. et al. Forests, fuelwood and livelihoods-energy transition patterns in eastern Indonesia. Energy Policy 85, 61–70 (2015).	Yes, six records, although none are based on non-proxy forest observations of an intervention that successfully achieved its aims. Two records show no change from interventions not considered successful, and another shows no change from an intervention whose success is unclear. Two show improvements but are unclear on the success of the intervention, and only one record shows improvements to forests from a succesful intervention.	1. Dresen, E., DeVries, B., Herold, M., Verchot, L. & Müller, R. Fuelwood savings and carbon emission reductions by the use of improved cooking stoves in an afromontane forest, Ethiopia. Land 3, 1137–1157 (2014). 2. Bensch, G. & Peters, J. Alleviating deforestation pressures? Impacts of improved stove dissemination on charcoal consumption in urban senegal. Land Econ. 89, 676–698 (2013). 3. Agarwala, M. et al. Impact of biogas interventions on forest biomass and regeneration in southern India. Glob. Ecol. Conserv. 11, 213–223 (2017). 4. Chowdhury, M. S. H., Koike, M., Akther, S. & Miah, M. D. Biomass fuel use, burning technique and reasons for the denial of improved cooking stove by the Forest User Groups of Rema-Kalenga Wildlife Sanctuary, Bangladesh. Int. J. Sustain. Dev. World Ecol. 18, (2011).
7.a	No info found			
7.b	A mixture of papers looking at (a) modern energy technologies at the local level (e.g. biogas, fuel-efficient stoves), which are generally good for forests, and (b) deployment of larger infrastructures, including an abundance of papers on dams, which are typically bad for forests.	1. Brooks, N. et al. How much do alternative cookstoves reduce biomass fuel use? Evidence from North India. Resour. Energy Econ. 43, 153–171 (2016). 2. Laurance, W. F. et al. Reducing the global environmental impacts of rapid infrastructure expansion. Curr. Biol. 25, R259–R262 (2015). 3. Aiken, S. R. & Leigh, C. H. Dams and indigenous peoples in Malaysia: Development, displacement and resettlement. Geogr. Ann. Ser. B Hum. Geogr. 97, 69–93 (2015).	Yes, 26 records including one where impacts were unclear and three where no impacts were found. Three records showing beneficial or no impacts largely overlap with those for 7.3, focusing on improved cookstove or biogas technologies. Nineteen records showing damaging impacts predominantly look at infrastucture for hydroelectric power generation, and one paper looks at geothermal power.	1. Dresen, E., DeVries, B., Herold, M., Verchot, L. & Müller, R. Fuelwood savings and carbon emission reductions by the use of improved cooking stoves in an afromontane forest, Ethiopia. Land 3, 1137–1157 (2014). 2. Fearnside, P. M. Brazil's Samuel Dam: Lessons for hydroelectric development policy and the environment in Amazonia. Environ. Manage. 35, 1–19 (2005). 3. Tefera, B. & Sterk, G. Hydropower-Induced Land Use Change in Fincha'a Watershed, Western Ethiopia: Analysis and Impacts. Mt. Res. Dev. 28, 72–80 (2008). 4. Ruchiyat, Y. Development of a geothermal power plant and nature conservation in Kamojang, West Java. Sustain. Rural Dev. Asia. Proc. SUAN IV Reg. Symp. agroecosystem Res. held Khon Kaen Univ. July 4-7, 1988 (1988).

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)													Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)			Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all														**90**					
8.1 Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries	1	4	0	2	5	9	5	10	10	0	0	2	1	49	0.41	-9.52	11.05	Mixed	High
8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA
8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation, and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services	4	3	5	0	0	0	0	0	0	0	0	0	0	12	5.34	0	0	Beneficial	High

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
8.1	Numerous papers typically correlating GDP with measures of forest change, often aiming to investigate the existence of an environmental Kuznets curve for forest loss. Impacts are mediated by a range of factors, including (but not only) current level of economic development at the site of interest, and EKC remains something of a controversial topic.	1. Capistrano, A. D. & Kiker, C. F. Macro-scale economic influences on tropical forest depletion. Ecol. Econ. 14, 21–29 (1995). 2. Foster, A. & Rosenzweig, M. Economic Growth and the Rise of Forests. Q. J. Econ. 118, 601–637 (2003). 3. Zhang, K., Song, C., Zhang, Y. & Zhang, Q. Natural disasters and economic development drive forest dynamics and transition in China. For. Policy Econ. 76, 56–64 (2017). 4. Wang, J., Xin, L. & Wang, Y. Economic growth, government policies, and forest transition in China. Reg. Environ. Chang. 19, 1023–1033 (2019).	Yes, one paper looks at Mexico's Oportunidades Program, which aims to increase the per-capita income of 40% of rural households by an average of one-third (note overlap with poverty targets), among other targets that were not implicated in forest impacts. Comparing enrolled vs non-enrolled villages, it shows that additional income increases deforestation, and that this effect is mediated by other factors, including access to markets.	1. Alix-Garcia, J., McIntosh, C., Sims, K. R. E. & Welch, J. R. The ecological footprint of poverty alleviation: Evidence from Mexico's Oportunidades Program. Rev. Econ. Stat. 95, 417–435 (2013).
8.2	No info found			
8.3	Good support that job creation in the non-agricultural sectors leads people to leave farms, resulting in less encroachment of agriculture into forests. One theoretical suggestion that poor families may initially clear more forest as their incomes rise but this, but that this tendency levels off or is reversed as they begin to seek more leisure.	1. Rudel, T. K. et al. Forest transitions: Towards a global understanding of land use change. Glob. Environ. Chang. 15, 23–31 (2005). 2. Parés-Ramos, I. K., Gould, W. A. & Aide, T. M. Agricultural abandonment, suburban growth, and forest expansion in Puerto Rico between 1991 and 2000. Ecol. Soc. 13, (2008). 3. Schmook, B. & Radel, C. International labor migration from a tropical development frontier: Globalizing households and an incipient forest transition: The Southern Yucatán case. Hum. Ecol. 36, 891–908 (2008). 4. Reforesting landscapes: Linking pattern and process. (Springer, 2010). 5. Kaimowitz, D. & Angelsen, A. Economic models of tropical deforestation: a review. (CIFOR, 1998).	No	NA

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)													Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)			Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
8.4 Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-Year Framework of Programmes on Sustainable Consumption and Production, with developed countries taking the lead	ENVIRONMENTAL																		
8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value	2	2	4	0	0	0	1	0	0	0	0	0	0	9	4.22	0	0.01	Beneficial	High
8.6 By 2020, substantially reduce the proportion of youth not in employment, education or training	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.01	0	0	Beneficial	Low

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
8.4	ENVIRONMENTAL			
8.5	Large overlap with 8.3. Good evidence to suggest that wage increases or increases in employment leads to a reduction in damaging agricultural practices.	As for 8.3	No	NA
8.6	One record found which states that unemployment is that main proximate cause of forest encroachment, suggesting that bettter employment options will reduce forest loss. However, empirical evidence to support this is lacking. Impacts from this target likely overlap with those relating to targets 4.4, 8.3 and 8.5, although as these are not explicit in the target text, this was not assumed in this work.	1. Iftekhar, M. S. & Hoque, A. K. F. Causes of forest encroachment: An analysis of Bangladesh. GeoJournal 62, 95–106 (2005).	No	NA

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)													Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)			Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
8.7 Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA
8.8 Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA
8.9 By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products	5	2	0	2	1	6	0	0	0	0	1	0	0	17	0.25	-6.12	0	Damaging	High

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
8.7	No info found			
8.8	No info found			
8.9	Several suggestions that well considered [eco]tourism can benefit forests, though no empirical examples of this were found. Rather, several studies have demonstrated negative impacts of tourism, typically associated with infrastructure and influxes of tourists.	1. Wunder, S. Promoting forest conservation through ecotourism income? A case study from the Ecuadorian Amazon region. CIFOR Occasional Paper No. 21 (1999). 2. Munanura, I. E., Backman, K. F., Sabuhoro, E. & Bernhard, K. P. The Potential of Tourism Benefits to Reduce Forest Dependence Behavior of Impoverished Residents Adjacent to Volcanoes National Park in Rwanda. Tour. Plan. Dev. 0, 1–22 (2019). 3. Kuvan, Y. The use of forests for the purpose of tourism: The case of Belek Tourism Center in Turkey. J. Environ. Manage. 75, 263–274 (2005). 4. Gaughan, A. E., Binford, M. W. & Southworth, J. Tourism, forest conversion, and land transformations in the Angkor basin, Cambodia. Appl. Geogr. 29, 212–223 (2009).	Yes, one paper shows that, in Yunnan Province, China, old-growth forest clearing accelerated most rapidly where ecotourism was most prominent.	1. Brandt, J. S. et al. Using Landsat imagery to map forest change in southwest China in response to the national logging ban and ecotourism development. Remote Sens. Environ. 121, 358–369 (2012).

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)													Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)			Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
8.10 Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance and financial services for all	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	-0.1	0	Damaging	Low
8.a Increase Aid for Trade support for developing countries, in particular least developed countries, including through the Enhanced Integrated Framework for Trade-related Technical Assistance to Least Developed Countries	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA
8.b By 2020, develop and operationalize a global strategy for youth employment and implement the Global Jobs Pact of the International Labour Organization	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0.01	0	0	Beneficial	Low

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
8.10	One record shows a positive relationship between number of bank accounts held by a household and likelihood of that household clearing forest, although other factors are implicated and it is not clear how measure of deforestation were obtained (seemingly based on panel data only).	1. Caviglia-Harris, J. L. Household production and forest clearing: the role of farming in the development of the Amazon. Environ. Dev. Econ. 9, 181–202 (2004).	No	NA
8.a	No info found			
8.b	As for 8.6	As for 8.6	No	NA

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)													Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)			Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation														107					
9.1 Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all	0	2	0	15	2	22	0	1	2	0	1	0	0	45	0.2	-22.35	2.1	Damaging	High
9.2 Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries	0	0	2	1	0	3	2	1	0	0	1	0	0	10	2	-3.01	0.12	Mixed	High

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
9.1	Good evidence to suggest that many types of infrastructure have negative impacts on forests, including roads, housing, and energy. Regarding roads, there is stronger evidence to suggest that roads designed to boost access to market (9.3) are especially damaging. Despite this, occasional records were found which suggest mixed or even beneficial impacts, but such evidence is relatively weak.	1. Doyle, M. W. & Havlick, D. G. Infrastructure and the Environment. Annu. Rev. Environ. Resour. 34, 349–373 (2009). 2. Laurance, W. F. et al. Reducing the global environmental impacts of rapid infrastructure expansion. Curr. Biol. 25, R259–R262 (2015). 3. Rezaee Motlaq, A., Parsakhoo, A., Adeli, K. & Moayeri, M. H. The influence of rural road development on forest extent changes over the three time periods: A case study of chegeni region, lorestan province. J. For. Sci. 64, 313–318 (2018). 4. BenYishay, A., Parks, B., Runfola, D. & Trichler, R. Forest Cover Impacts of Chinese Development Projects in Ecologically Sensitive Areas. AidData Work. Pap. 32 (2016). 5. Kaczan, D. J. Can roads contribute to forest transitions? World Dev. 129, 104898 (2020).	Yes, four papers covering transport networks and/or infrastructure to support new settlements. All had damaging impacts.	1. Massart, M., Petillon, M. & Wolff, E. The impact of an agricultural development project on a tropical forest environment: the case of Shaba (Zaire). PE&RS, Photogramm. Eng. Remote Sens. 61, 1153–1158 (1995). 2. Patarasuk, R. & Binford, M. W. Longitudinal analysis of the road network development and land-cover change in Lop Buri province, Thailand, 1989-2006. Appl. Geogr. 32, 228–239 (2012). 3. De Castro, T. C. S. et al. Social and Environmental Impacts on Rural Communities Residing Near the Industrial Complex of Sao Luis Island, State of Maranhão, Brazil. J. Sustain. Dev. 10, 249 (2017).
9.2	Records show mixed impacts: Insudustrialisation can be damaging due to associated infrastructure, poollution and influxes or workers, but can also preoduce beneficial impacts as it allows people to move out of agriculture, which itself has damaging impacts.	1. Corney, P. et al. Impacts of nearby development on the ecology of ancient woodland. (Report to the Woodland Trust, 2008). 2. Jones, D. W. & O'Neill, R. V. Development Policies, Urban Unemployment and Deforestation: the Role of Infrastructure and Tax Policy in a Two-Sector Model. J. Reg. Sci. 35, 135–153 (1995). 3. Parés-Ramos, I. K., Gould, W. A. & Aide, T. M. Agricultural abandonment, suburban growth, and forest expansion in Puerto Rico between 1991 and 2000. Ecol. Soc. 13, (2008).	Yes, one paper shows damage to mangroves cased by the development of the Industrial Complex of São Luís Island in Brazil.	1. De Castro, T. C. S. et al. Social and Environmental Impacts on Rural Communities Residing Near the Industrial Complex of Sao Luis Island, State of Maranhão, Brazil. J. Sustain. Dev. 10, 249 (2017).

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)													Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)			Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
9.3 Increase the access of small-scale industrial and other enterprises, in particular in developing countries, to financial services, including affordable credit, and their integration into value chains and markets	3	3	0	15	7	10	0	0	1	0	1	0	0	40	0.23	-10.86	1	Damaging	High
9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities	ENVIRONMENTAL																		
9.5 Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
9.3	Good evidence to suggest damaging impacts of multiple aspects of this target, especially increasing access to market, and particularly when this is achieved through development of roads. Also credit and access to financial services (inc cooperative membership) has damaging impacts. Some theoretical records that there may be beneficial impacts, but evidence is weak.	1. Pendleton, L. H. & Howe, E. L. Market integration, development, and smallholder forest clearance. Land Econ. 78, 1–19 (2002). 2. Shriar, A. J. Economic integration, rural hardship, and conservation on guatemala's agricultural frontier. J. Sustain. For. 30, 133–157 (2011). 3. Heath, J. & Binswanger, H. Natural resource degradation effects of poverty and population growth are largely policy-induced: the case of Colombia. Environ. Dev. Econ. 1, 65–84 (1996). 4. Brandão Jr, A. & Souza Jr, C. Deforestation in Land Reform Settlements in the Amazon. Imazon 7, 1–4 (2006).	Yes, five papers. One shows damaging forest impacts (based on the proxy measure farm size) of providing credit to farmers, and four show damaging forest impacts of roads intended to increase trade and market access (two focus on the same intervention).	1. Muneer, S. E. T. & Musa, A. A. Agricultural development and environmental problems in Sudan. The case of EN Nahud Cooperative Credit Project in Kordofan State, Sudan. Sci. Total Environ. 166, 55–60 (1995). 2. Baraloto, C. et al. Effects of road infrastructure on forest value across a tri-national Amazonian frontier. Biol. Conserv. 191, 674–681 (2015). 3. Patarasuk, R. & Binford, M. W. Longitudinal analysis of the road network development and land-cover change in Lop Buri province, Thailand, 1989-2006. Appl. Geogr. 32, 228–239 (2012).
9.4				
9.5	No info found			

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)													Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)			Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
9.a Facilitate sustainable and resilient infrastructure development in developing countries through enhanced financial, technological and technical support to African countries, least developed countries, landlocked developing countries and small island developing States	0	0	0	0	0	6	0	0	2	0	0	0	0	8	0	-6	2	Mixed	High
9.b Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA
9.c Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020	1	0	0	1	1	0	0	1	0	0	0	0	0	4	0.01	-0.11	0.1	Mixed	Low

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
9.a	Overlaps with 9.1, and includes records pertaining to internationally funded infrastructure or technology development. Infrastructure impacts are typically damaging, and upgrades to technology can have mixed impacts.	1. Laurance, W. F. et al. Reducing the global environmental impacts of rapid infrastructure expansion. Curr. Biol. 25, R259–R262 (2015). 2. BenYishay, A., Parks, B., Runfola, D. & Trichler, R. Forest Cover Impacts of Chinese Development Projects in Ecologically Sensitive Areas. AidData Work. Pap. 32 (2016). 3. Agricultural Technologies and Tropical Deforestation. (CABI Publishing and CIFOR, 2001).	Yes, two papers documenting internationally financed infrastructure projects (a dam and a road network), both with damaging impoacts.	1. Ascher, W. & Healy, R. G. Natural resource policymaking in developing countries: Environment, economic growth, and income distribution. (Duke University Press, 1990). 2. Massart, M., Petillon, M. & Wolff, E. The impact of an agricultural development project on a tropical forest environment: the case of Shaba (Zaire). PE&RS, Photogramm. Eng. Remote Sens. 61, 1153–1158 (1995).
9.b	No info found			
9.c	Records show that communications infrastructure typically has negative impacts, although reasons why are unclear. Access to communication technologies can have positive and negative impacts as they can allow for more inclusive decision-making based on better information, but can also allow access to markets much further afield.	1. Poteete, A. R. & Welch, D. Institutional development in the face of complexity: Developing rules for managing forest resources. Hum. Ecol. 32, 279–311 (2004). 2. Wheeler, D., Hammer, D., Kraft, R., Dasgupta, S. & Blankespoor, B. Economic dynamics and forest clearing: A spatial econometric analysis for Indonesia. Ecol. Econ. 85, 85–96 (2013). 3. Lim, C. L., Prescott, G. W., De Alban, J. D. T., Ziegler, A. D. & Webb, E. L. Untangling the proximate causes and underlying drivers of deforestation and forest degradation in Myanmar. Conserv. Biol. 31, 1362–1372 (2017). 4. Carrasco, L. R., Chan, J., McGrath, F. L. & Nghiem, L. T. P. Biodiversity conservation in a telecoupled world. Ecol. Soc. 22, (2017).	No	NA

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)													Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)			Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
Goal 10: Reduce inequality within and among countries														23					
10.1 By 2030, progressively achieve and sustain income growth of the bottom 40 per cent of the population at a rate higher than the national average	2	3	0	0	0	3	0	1	2	0	1	0	0	12	0.32	-3	2.1	Mixed	High
10.2 By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0.1	0	0	Beneficial	Low
10.3 Ensure equal opportunity and reduce inequalities of outcome, including by eliminating discriminatory laws, policies and practices and promoting appropriate legislation, policies and action in this regard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
10.1	As for 1.1	As for 1.1	As for 1.1	As for 1.1
10.2	One study, based on case-studies, suggests that reducing ethnic inequalities can have benefits for forest commons as inequalities "lend favour to more powerful groups in their pursuit of resource grab and exploitation".	1. Matin, N. et al. Group inequality and environmental sustainability: Insights from Bangladesh and Kenyan forest commons. Sustain. 6, 1462–1488 (2014).	No	NA
10.3	No info found			

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)													Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)			Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
10.4 Adopt policies, especially fiscal, wage and social protection policies, and progressively achieve greater equality	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA
10.5 Improve the regulation and monitoring of global financial markets and institutions and strengthen the implementation of such regulations	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA
10.6 Ensure enhanced representation and voice for developing countries in decision-making in global international economic and financial institutions in order to deliver more effective, credible, accountable and legitimate institutions	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA
10.7 Facilitate orderly, safe, regular and responsible migration and mobility of people, including through the implementation of planned and well-managed migration policies	1	0	0	0	0	0	0	0	0	0	0	0	5	6	0.01	0	0	Beneficial	Low

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
10.4	No info found			
10.5	No info found			
10.6	No info found			
10.7	Migration, whether planned or spontaneious, is often implicated in forest loss and degradation, suggesting that better management of migration could help reduce forest impacts. However, no evidence was found to corroborate this this theory.	1. Getahun, K., Poesen, J. & Van Rompaey, A. Impacts of Resettlement Programs on Deforestation of Moist Evergreen Afromontane Forests in Southwest Ethiopia. Mt. Res. Dev. 37, 474–486 (2017). 2. Hugo, G. Migration, Development and Environment. Draft paper for Research Workshop on Migration and the Environment: Developing a Global Research Agenda, Munich, Germany, 16-18 April 2008 (2008). 3. Ichikawa, M., Ricse, A., Ugarte, J. & Kobayashi, S. Migration patterns and land use by immigrants under a changing frontier society in the Peruvian Amazon. Tropics 23, 73–82 (2014).	No	NA

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)													Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)			Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
10.a Implement the principle of special and differential treatment for developing countries, in particular least developed countries, in accordance with World Trade Organization agreements	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA
10.b Encourage official development assistance and financial flows, including foreign direct investment, to States where the need is greatest, in particular least developed countries, African countries, small island developing States and landlocked developing countries, in accordance with their national plans and programmes	0	1	0	0	1	0	0	1	0	1	0	0	0	4	0.1	-0.1	0.1	Mixed	Low
10.c By 2030, reduce to less than 3 per cent the transaction costs of migrant remittances and eliminate remittance corridors with costs higher than 5 per cent	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
10.a	No info found			
10.b	Findings suggest that FDI can lead to forest transition when funds are not targeted at primary industries, but can be damaging when they are. Negative impacts are thought to be mediated by governance factors, such as corruption.	1. Li, L., Liu, J., Long, H., de Jong, W. & Youn, Y. C. Economic globalization, trade and forest transition-the case of nine Asian countries. For. Policy Econ. 76, 7–13 (2017). 2. Assa, B. S. K. Foreign direct investment, bad governance and forest resources degradation: evidence in Sub-Saharan Africa. Econ. Polit. 35, 107–125 (2018). 3. Scholtens, L. J. R. Environmental, developmental and financial risks of tropical timber plantation investment funds. Nat. Resour. Forum 22, 271–277 (1998).	No	NA
10.c	No info found			

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)					Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)			Overall direction	Overall confidence
	Ben (low) / Ben (fair) / Ben (good)	Dam (low) / Dam (fair) / Dam (good)	Mix (low) / Mix (fair) / Mix (good)	Neg (low) / Neg (fair) / Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable						54					
11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums	0 1 0	4 1 5	0 0 0	0 0 0	0	11	0.1	-5.14	0	Damaging	High
11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons	0 0 0	7 0 14	0 1 0	0 0 0	0	22	0	-14.07	0.1	Damaging	High

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
11.1	A general understanding that urban expansion to provide housing is damaging for forests. One record suggests that urban dwellers have lower demand for fuelwood.	1. Friesen, L. E., Eagles, P. F. J. & Mackay, R. J. Effects of Residential Development on Forest-Dwelling Neotropical Migrant Songbirds. Conserv. Biol. 9, 1408–1414 (1995). 2. Benfield, S. L., Guzman, H. M. & Mair, J. M. Temporal mangrove dynamics in relation to coastal development in Pacific Panama. J. Environ. Manage. 76, 263–276 (2005). 3. DeFries, R. & Pandey, D. Urbanization, the energy ladder and forest transitions in India's emerging economy. Land use policy 27, 130–138 (2010).	No	NA
11.2	A general acceptance that development of roads and railways for public transport has negative impacts on forests, as does the process of improving road safety by way of paving.One paper suggests that roads can have beneficial effects in certain contexts (e.g. where agriculture is the predominant land use type) but this is not reflective of other records.	1. Angelstam, P. et al. Green infrastructure development at European Union's eastern border: Effects of road infrastructure and forest habitat loss. J. Environ. Manage. 193, 300–311 (2017). 2. Cornet, Y., Dudley, G. & Banister, D. High Speed Rail: Implications for carbon emissions and biodiversity. Case Stud. Transp. Policy 6, 376–390 (2018). 3. Kaczan, D. J. Can roads contribute to forest transitions? World Dev. 129, 104898 (2020).	No	NA

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)													Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)			Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries	15	4	0	0	0	0	0	0	0	0	0	0	0	19	0.55	0	0	Beneficial	Low
11.4 Strengthen efforts to protect and safeguard the world's cultural and natural heritage	ENVIRONMENTAL																		
11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	-2	0	Damaging	High

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
11.3	Multiple records suggest that better and more inclusive planning will reduce forest degradation from urbanization, but no evidence that tests this empirically was found	1. Erazo, J. S. Landscape Ideologies, Indigenous Governance, and Land Use Change in the Ecuadorian Amazon, 1960-1992. Hum. Ecol. 39, 421–439 (2011). 2. Valencia-Sandoval, C., Flanders, D. N. & Kozak, R. A. Participatory landscape planning and sustainable community development: Methodological observations from a case study in rural Mexico. Landsc. Urban Plan. 94, 63–70 (2010). 3. Miller, M. D. The impacts of Atlanta's urban sprawl on forest cover and fragmentation. Appl. Geogr. 34, 171–179 (2012).	No	NA
11.4				
11.5	Two records found, both or which report the damaging impacts of dams constructed to provide flood protection	1. Doyle, M. W. & Havlick, D. G. Infrastructure and the Environment. Annu. Rev. Environ. Resour. 34, 349–373 (2009).	Yes, one paper documents damaging impacts of a dam built to help control flooding (among other purposes). Also included under target 1.5.	1. Irving, G. J., Round, P. D., Savini, T., Lynam, A. J. & Gale, G. A. Collapse of a tropical forest bird assemblage surrounding a hydroelectric reservoir. Glob. Ecol. Conserv. 16, e00472 (2018).

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)													Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)				Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence			
11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management	ENVIRONMENTAL																			
11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities	ENVIRONMENTAL																			
11.a Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA
11.b By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
11.6				
11.7				
11.a	No info found			
11.b	No info found			

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)													Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)			Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
11.c Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local materials	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA
Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels														182					
16.1 Significantly reduce all forms of violence and related death rates everywhere	3	1	1	2	1	3	4	1	6	0	0	1	2	25	1.13	-3.12	6.14	Mixed	High

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
11.c	No info found			
16.1	Numerous examples of how the cessation of violent conflicts can have both negative and/or positive impacts on forests. Mechanisms can be complex, often involving a multitude of factors. For example, while ending a conflict may alleviate forest pressures relating to displaced peoples, armed groups residing in forests and/or the breakdown of the rule of law, it may concurrently allow for other damaging activities to begin or resume, including agricultural expansion or increased exploitation of forest resources from formerly hostile environments.	1. Álvarez, M. D. Could peace be worse than war for Colombia's forests? Environmentalist 21, 305–315 (2001). 2. McNeely, J. A. Biodiversity, War, and Tropical Forests. J. Sustain. For. 16, 1–20 (2003). 3. Loucks, C. et al. Wildlife decline in Cambodia, 1953-2005: exploring the legacy of armed conflict. Conserv. Lett. 2, 82–92 (2009). 4. Draulans, D. & Van Krunkelsven, E. The impact of war on forest areas in the Democratic Republic of Congo. Oryx 36, 35–40 (2002).	Yes, eight papers looking at the impacts of the termination of civil conflicts in Colombia and a range of sub-Saharan African countries. Research in Colombia (two records) show damaging impacts, while all but one records from Africa showed mixed impacts. Mixed impacts typically relate to movements of people following cessation of conflict (e.g. returning refugees, and movement out of core forest areas and protected areas). One record focusing on cessation of war in Angola shows that an increasing rate of deforestation was not affected by the change.	1. Prem, M., Saavedra, S. & Vargas, J. F. End-of-conflict deforestation: Evidence from Colombia's peace agreement. World Dev. 129, 104852 (2020). 2. Nackoney, J. et al. Impacts of civil conflict on primary forest habitat in northern Democratic Republic of the Congo, 1990-2010. Biol. Conserv. 170, 321–328 (2014). 3. Ordway, E. M. Political shifts and changing forests: Effects of armed conflict on forest conservation in Rwanda. Glob. Ecol. Conserv. 3, 448–460 (2015). 4. Schneibel, A. et al. Evaluating the trade-off between food and timber resulting from the conversion of Miombo forests to agricultural land in Angola using multi-temporal Landsat data. Sci. Total Environ. 548–549, 390–401 (2016).

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)														Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)			Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown			Beneficial confidence	Damaging confidence	Mixed confidence		
16.2 End abuse, exploitation, trafficking and all forms of violence against and torture of children	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	Unknown	NA
16.3 Promote the rule of law at the national and international levels and ensure equal access to justice for all	34	4	3	0	0	0	0	0	0	0	0	1	2		44	3.74	0	0	Beneficial	High

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
16.2	No info found			
16.3	Near unanimous agreement that improving law enforcement can be beneficial for forests in a range of different contexts, although some empirical records show negligible effects in some cases. Most records pertain to laws specifically relating to forests, and so it less clear how this goal can impact forests in a broader, more general context.	1. Brunner, J., Seymour, F., Badenoch, N. & Ratner, B. Forest Problems and Law Enforcement In Southeast Asia: The Role Of Local Communities. (1999). 2. Mukul, S. A., Herbohn, J., Rashid, A. Z. M. M. & Uddin, M. B. Comparing the effectiveness of forest law enforcement and economic incentives to prevent illegal logging in Bangladesh. Int. For. Rev. 16, 363–375 (2014). 3. Sassen, M., Sheil, D., Giller, K. E. & ter Braak, C. J. F. Complex contexts and dynamic drivers: Understanding four decades of forest loss and recovery in an East African protected area. Biol. Conserv. 159, 257–268 (2013). 4. Downs, F. Rule of law and environmental justice in the forests: The challenge of 'strong law enforcement' in corrupt conditions. (Chr. Michelsen Institute, 2013).	No	NA

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)													Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)			Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
16.4 By 2030, significantly reduce illicit financial and arms flows, strengthen the recovery and return of stolen assets and combat all forms of organized crime	3	0	0	1	0	3	0	0	0	0	0	1	0	8	0.03	-3.01	0	Damaging	High
16.5 Substantially reduce corruption and bribery in all their forms	43	3	1	0	1	0	0	0	0	0	0	0	0	48	1.73	-0.1	0	Beneficial	High

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
16.4	All empirical records relate to efforts to reduce organised crime in Colombia (see final columns), which typically showed damaging impacts. However, a number of records without emprical observations suggest that tackling organized crime in other contexts (for example money laundering) would be beneficial.	1. CIFOR. Science for Forests and People. CIFOR Anuual Report 2003. (2003). 2. Barr, C., Dermawan, A., Purnomo, H. & Komarudin, H. Financial Governance and Indonesia's Reforestation Fund during the Soeharto and Post-Soeharto periods, 1989 - 2009. a political economic analysis of lessons for REDD+ (CIFOR, 2010). 3. Goncalves, M. P., Panjer, M., Greenberg, T. S. & Magrath, W. B. Justice for Forests. Improving Criminal Justice Efforts to Combat Illegal Logging. (The World Bank, 2012).	Yes, four papers all relating to curtailment of coca-related crime in Colombia. Three show associated forest declines associated with either the spraying of defoliants or the switching of locations and/or crops by cultivators. One records showed negligible impacts of defoliant spraying.	1. Messina, J. P. & Delamater, P. L. Defoliation and the war on drugs in Putumayo, Colombia. Int. J. Remote Sens. 27, 121–128 (2006). 2. Bradley, A. V. & Millington, A. C. Coca and colonists: Quantifying and explaining forest clearance under coca and anti-narcotics policy regimes. Ecol. Soc. 13, (2008). 3. Dávalos, L. M. et al. Forests and drugs: Coca-driven deforestation in tropical biodiversity hotspots. Environ. Sci. Technol. 45, 1219–1277 (2011). 4. Rincón-Ruiz, A. & Kallis, G. Caught in the middle, Colombia's war on drugs and its effects on forest and people. Geoforum 46, 60–78 (2013).
16.5	Strong theoretical evidence to suggest that reducing corruption has benefits for forests, supported by a few records which have shown this empirically. Only one record suggests that controlling corruption allowed greater agricultural expansion at the expense of forests, although this evidence was not particularly strong.	1. Sundström, A. Understanding illegality and corruption in forest governance. J. Environ. Manage. 181, 779–790 (2016). 2. Sommer, J. M. Corrupt Actions and Forest Loss: A Cross-National Analysis. Int. J. Soc. Sci. Stud. 6, 23 (2018). 3. Khalid, T., Ullah, A. & Zaman, L. Role of Bribery in Poor Forest Governance A Case of District Malakand. J. Soc. Sci. Humanit. Stud. 5, 1–7 (2019). 4. Galinato, G. I. & Galinato, S. P. The short-run and long-run effects of corruption control and political stability on forest cover. Ecol. Econ. 89, 153–161 (2013).	No	NA

SDG target	Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible)													Total records	Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1)			Overall direction	Overall confidence
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
16.6 Develop effective, accountable and transparent institutions at all levels	23	4	0	0	0	0	0	0	0	0	0	0	0	27	0.63	0	0	Beneficial	Low
16.7 Ensure responsive, inclusive, participatory and representative decision-making at all levels	15	5	0	1	0	0	1	0	0	0	0	0	0	22	0.65	-0.01	0.01	Beneficial	Low

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
16.6	Large number of theoretical records suggesting that improving the effectiveness and transparency of institutions will benefit forest, but no empirical demonstrations of this.	1. Suwarno, A., Hein, L. & Sumarga, E. Governance, decentralisation and deforestation: The case of central Kalimantan Province, Indonesia. Q. J. Int. Agric. 54, 77–100 (2015). 2. Klaver, D. Multi-stakeholder design of forest governance and accountability arrangements in Equator province, Democratic Republic of Congo. (IUCN and Wageningen University & Research Centre, 2009). 3. Ehrhardt-Martinez, K., Crenshaw, E. M. & Jenkins, J. C. Deforestation and the Environmental Kuznets Curve: A Cross-National Investigation of Intervening Mechanisms. Soc. Sci. Q. 83, 226–243 (2002). 4. Barr, C., Dermawan, A., Purnomo, H. & Komarudin, H. Financial Governance and Indonesia's Reforestation Fund during the Soeharto and Post-Soeharto periods, 1989 - 2009. a political economic analysis of lessons for REDD+ (CIFOR, 2010).	No	NA
16.7	Large number of theoretical records suggesting that giving greater decision-making powers to local communities can benefit forests, but no well quantified empirical demonstrations of this were found. Some counter arguments (also theoretical) suggest that local commuities may sometimes favour development over conservation.	1. Becker, C. D. Grassroots to Grassroots: Why Forest Preservation was Rapid at Loma Alta, Ecuador. World Dev. 31, 163–176 (2003). 2. Policies and governance structures in woodlands of Southern Africa. (CIFOR, 2003). 3. Erazo, J. S. Landscape Ideologies, Indigenous Governance, and Land Use Change in the Ecuadorian Amazon, 1960-1992. Hum. Ecol. 39, 421–439 (2011). 4. Feintrenie, L. & Levano, P. Local voices call for economic development over forest conservation: Trade-offs and policy in Bungo, Sumatra. For. Trees Livelihoods 20, 35–49 (2011).	No	NA

| SDG target | Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible) | | | | | | | | | | | | | Total records | Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1) | | | Overall direction | Overall confidence |
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
16.8 Broaden and strengthen the participation of developing countries in the institutions of global governance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA
16.9 By 2030, provide legal identity for all, including birth registration	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA
16.10 Ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0.2	0	0	Beneficial	Low

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
16.8	No info found			
16.9	No info found			
16.10	Evidence to suggest that increasing public access to information can benefit forests, particularly by way of reducing corruption, and also by aiding better decision-making more generally.	1. Jorgenson, A. K. & Burns, T. J. Effects of rural and urban population dynamics and national development on deforestation in less-developed countries, 1990-2000. Sociol. Inq. 77, 460–482 (2007). 2. Suwarno, A., Hein, L. & Sumarga, E. Governance, decentralisation and deforestation: The case of central Kalimantan Province, Indonesia. Q. J. Int. Agric. 54, 77–100 (2015).	No	NA

| SDG target | Total records for each impact by confidence score (Ben = beneficial; Dam = damaging; Mix = mixed; Neg = negligible) | | | | | | | | | | | | | Total records | Summed confidence scores associated with each impact direction. Low = 0.01 (-0.01 for damaging); fair = 0.1 (or -0.1) and good = 1 (or -1) | | | Overall direction | Overall confidence |
	Ben (low)	Ben (fair)	Ben (good)	Dam (low)	Dam (fair)	Dam (good)	Mix (low)	Mix (fair)	Mix (good)	Neg (low)	Neg (fair)	Neg (good)	Unknown		Beneficial confidence	Damaging confidence	Mixed confidence		
16.a Strengthen relevant national institutions, including through international cooperation, for building capacity at all levels, in particular in developing countries, to prevent violence and combat terrorism and crime	5	0	0	0	0	0	1	0	0	0	0	0	0	6	0.05	0	0.01	Mixed	Low
16.b Promote and enforce non-discriminatory laws and policies for sustainable development	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Unknown	NA

SDG target	Explanation and notes	Sample references	Intervention-related information found?	Intervention sample references
16.a	All records are theoretical only, and suggest that great ablilty to combat violence, terrorism and crime will benefit forests. In particular, halting the illegal exploitation and sale of forest products (especially timber) to fund terrorist operations is seen as a key synergy. One record states that both the presence of terrorists in forests and efforts to remove them through restricting timber sales has negative conservation outcomes.	1. Bader, H. R., Hanna, C., Douglas, C. & Fox, J. D. Illegal Timber Exploitation and Counterinsurgency Operations in Kunar Province of Afghanistan: A Case Study Describing the Nexus Among Insurgents, Criminal Cartels, and Communities Within the Forest Sector. J. Sustain. For. 32, 329–353 (2013). 2. Setiono, B. & Husein, Y. Fighting forest crime and promoting prudent banking for sustainable forest management: the anti money laundering approach. CIFOR Occasional Paper No. 44 (CIFOR, 2005). 3. Mukherjee, V. & Gupta, G. Of guns and trees: Impact of terrorism on forest conservation. Environ. Dev. Econ. 11, 221–233 (2006).	No	NA
16.b	No info found			

Appendix B: Supplement to Chapter 3

B.1. Supplementary results
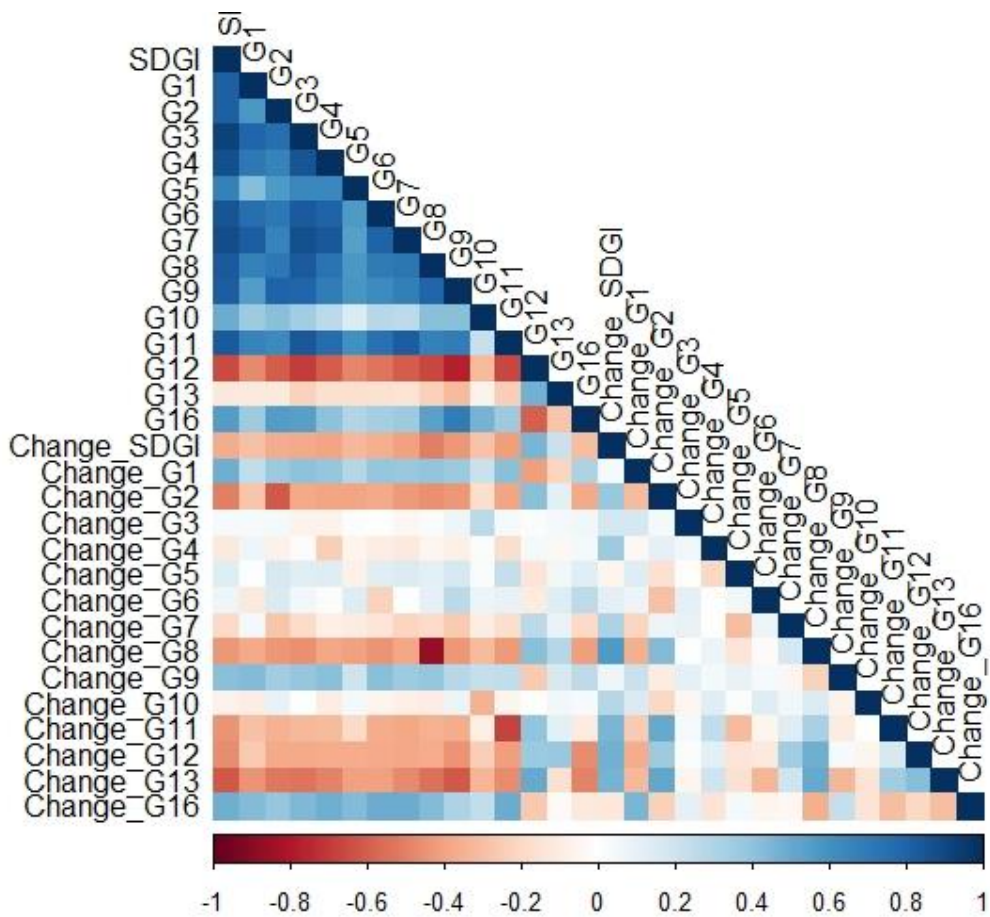
Figure B.1. Pearson's correlation matrix for all variables and all countries. SDGI = overall SDGI score; G = Goal number; Change_ = Change in score from 2017-2020
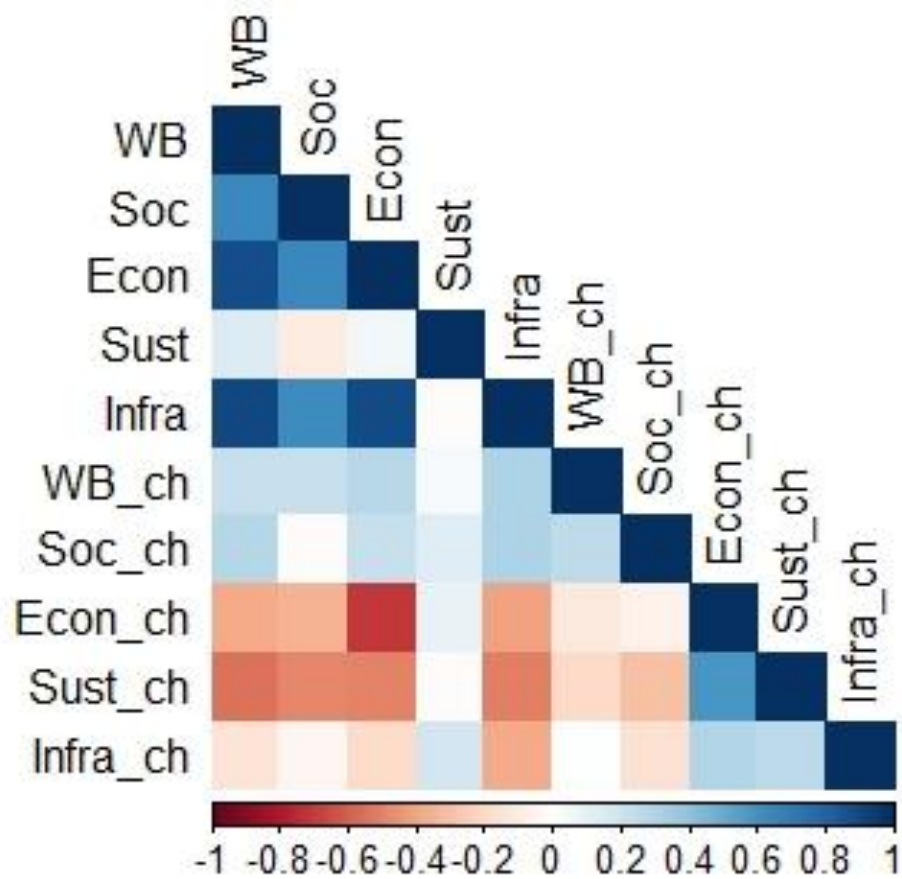
Figure B.2. Pearson's correlation matrix for Goal themes for all countries. '_ch' indicates 2017-2020 changes, as opposed to 2017 values. Themes are as follows: WB = Well-being; Soc = Social; Econ = Economic; Sust = Sustainability; Infra = Infrastructure.
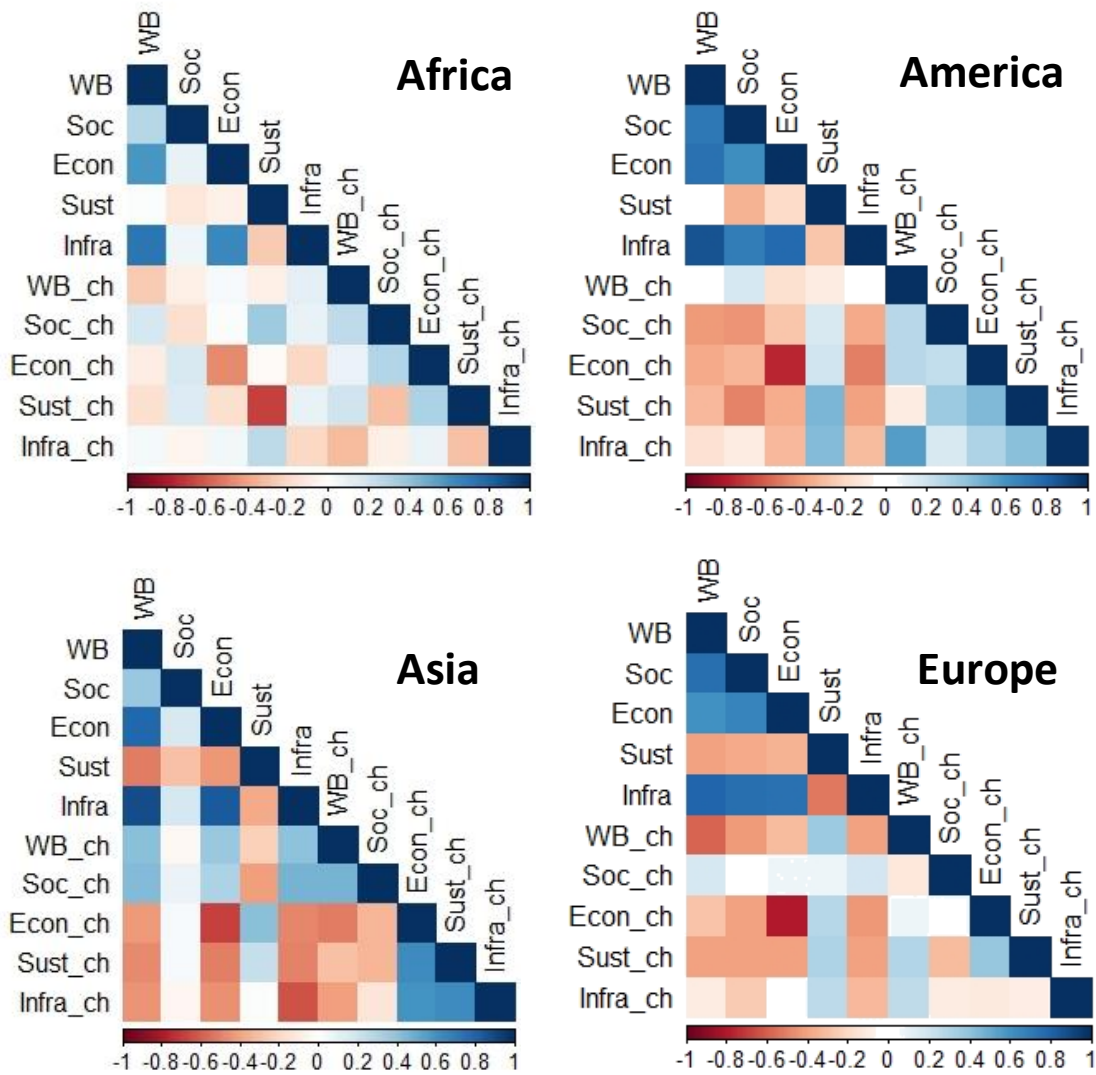
Figure B.3. Pearson's correlation matrix for Goal themes by region. '_ch' indicates 2017-2020 changes, as opposed to 2017 values. Themes are as follows: WB = Well-being; Soc = Social; Econ = Economic; Sust = Sustainability; Infra = Infrastructure.

Table B.1. Summary statistics for all variables included in this work. The last three columns show total countries with negative, positive and no changes, respectively. Table continues over the page.

Variable type	Variable	Mean	St. dev.	Min	Max	Total -ve	Total +ve	Total no change
Outcome	Net forest cover change 2017-2020 (%) (GFRA)	-0.2221	0.6051	-2.6460	1.0766	60	37	25
	% Tree cover loss 2017-2020 (GFW)	2.8706	2.5529	0	16.237	-	-	-
2017 goal values	SDGI (all goals)	65.9	11.1	36.7	85.6	-	-	-
	Goal 1. Poverty	84.7	25.7	0	100	-	-	-
	Goal 2. Food	53.7	12.0	23.9	80.4	-	-	-
	Goal 3. Health	71.9	19.7	24.6	97.6	-	-	-
	Goal 4. Education	74.1	21.6	3.9	99.8	-	-	-
	Goal 5. Gender	62.9	14.5	27.9	87.9	-	-	-
	Goal 6. Water	82.6	14.3	38.6	98.5	-	-	-
	Goal 7. Energy	66.4	28.3	0	99.9	-	-	-
	Goal 8. Economy	63.3	17.7	17	95.8	-	-	-
	Goal 9. Industry	35.5	25.2	2.3	93.9	-	-	-
	Goal 10. Equality	60.8	23.7	0	100	-	-	-
	Goal 11. Cities	76.6	21.3	14	100	-	-	-
	Goal 12. Production	68.5	12.1	34.3	84.7	-	-	-
	Goal 13. Climate	79.6	11.0	30.1	94.7	-	-	-
	Goal 16. Justice	62.9	12.9	31.2	91.8	-	-	-
2017 Group values	Well-being	70.1	17.3	19.8	91.1	-	-	-
	Social	62.2	12.6	28	91.6	-	-	-
	Economy	68.7	18.3	24.3	96.7	-	-	-
	Sustainability	76.9	6.4	55.2	87.1	-	-	-
	Infrastructure	59.5	22.7	12.3	95.7	-	-	-

Table B.1. (Continued from previous page).

Variable type	Variable	Mean	St. dev.	Min	Max	Total -ve	Total +ve	Total no change
2017-2020 goal changes	SDGI (all goals)	2.2	2.7	-4.9	10.0	22	99	1
	Goal 1. Poverty	-8.6	13.7	-56.9	26.7	105	12	5
	Goal 2. Food	3.7	5.7	-11.1	21.2	33	89	0
	Goal 3. Health	-0.7	3.0	-12.8	8.8	76	46	0
	Goal 4. Education	6.6	8.7	-18.9	36.2	22	100	0
	Goal 5. Gender	1.6	3.3	-13.1	9.8	29	93	0
	Goal 6. Water	-11.4	6.7	-36.6	2.6	117	5	0
	Goal 7. Energy	6.5	4.8	-7.5	25.5	4	117	1
	Goal 8. Economy	10.5	12.6	-24.7	55.1	22	100	0
	Goal 9. Industry	9.2	7.1	-14.1	32.3	12	110	0
	Goal 10. Equality	-3.4	13.7	-46.1	60.5	70	51	1
	Goal 11. Cities	-3.4	12.5	-39.9	41.9	80	42	0
	Goal 12. Production	7.6	8.8	-25.5	24.2	23	99	0
	Goal 13. Climate	4.3	14.7	-58.9	34.0	38	84	0
	Goal 16. Justice	3.8	7.9	-15.9	20.5	35	87	0
2017-2020 Theme changes	Well-being	-1.9	4.6	-24.9	7.6	80	42	0
	Social	2.0	15.2	-33.3	62.2	44	78	0
	Economy	8.6	7.9	-8.6	33.4	13	109	0
	Sustainability	0.2	6.4	-21.3	12.9	56	66	0
	Infrastructure	4.1	5.0	-9.8	23.4	14	108	0

Table B.2. Summary statistics for all available data for Africa. Last three columns show total countries with negative, positive and no changes, respectively. Continues over the page.

Variable type	Variable	Mean	St. dev.	Min	Max	Total -ve	Total +ve	Total zero
Outcome	Net forest cover change 2017-2020 (%) (GFRA)	-.535	.540	-1.699	.122	26	4	2
	% Tree cover loss 2017-2020 (GFW)	3.869	3.697	0	16.237	-	-	-
2017 Goal values	SDGI (all goals)	51.8	6.5	36.7	66.7	-	-	-
	Goal 1. Poverty	51.7	29.3	0	99.8	-	-	-
	Goal 2. Food	42.0	7.1	23.9	54.3	-	-	-
	Goal 3. Health	45.6	12.5	24.6	79.5	-	-	-
	Goal 4. Education	48.2	21.8	3.9	85.8	-	-	-
	Goal 5. Gender	51.1	15.5	27.9	80.9	-	-	-
	Goal 6. Water	63.5	11.2	38.6	82.9	-	-	-
	Goal 7. Energy	29.6	24.6	0	85.3	-	-	-
	Goal 8. Economy	43.4	11.0	17	71.3	-	-	-
	Goal 9. Industry	13.1	9.1	2.6	45.1	-	-	-
	Goal 10. Equality	50.1	21.9	0	78.6	-	-	-
	Goal 11. Cities	54.3	17.7	25.8	94.9	-	-	-
	Goal 12. Production	77.1	7.3	52.8	84.7	-	-	-
	Goal 13. Climate	81.2	10.7	43.8	94.7	-	-	-
	Goal 16. Justice	57.2	7.9	42	72.9	-	-	-
2017 Group values	Well-being	46.4	13.5	19.8	74.5	-	-	-
	Social	52.8	7.3	33.4	65.1	-	-	-
	Economy	45.8	13.7	24.3	77.6	-	-	-
	Sustainability	73.9	5.3	55.2	82.2	-	-	-
	Infrastructure	32.3	15.1	12.3	68.8	-	-	-

Table B.2. (Continued from previous page).

Type	Variable	Mean	St. dev.	Min	Max	-ve	+ve	Zero
2017-2020 Goal changes	SDGI (all goals)	3.3	2.3	-1.7	10.0	2	30	0
	Goal 1. Poverty	-19.2	18.3	-50.3	26.7	27	2	3
	Goal 2. Food	7.0	5.4	-3.4	19.0	2	30	0
	Goal 3. Health	-0.6	3.9	-9.1	8.8	19	13	0
	Goal 4. Education	5.1	8.2	-8.9	24.2	9	23	0
	Goal 5. Gender	1.3	3.5	-7.9	6.6	11	21	0
	Goal 6. Water	-10.7	7.3	-26.2	2.6	28	4	0
	Goal 7. Energy	6.9	5.3	-3.0	18.9	1	31	0
	Goal 8. Economy	21.6	11.8	2.6	55.1	0	32	0
	Goal 9. Industry	5.2	5.3	-3.6	16.6	6	26	0
	Goal 10. Equality	-2.8	13.3	-34.9	38.7	19	12	1
	Goal 11. Cities	1.5	12.0	-23.0	18.1	16	16	0
	Goal 12. Production	12.7	6.1	-4.5	24.2	3	29	0
	Goal 13. Climate	15.5	8.9	-0.2	34.0	1	31	0
	Goal 16. Justice	-3.7	6.4	-15.9	7.1	20	12	0
2017-2020 Theme changes	Well-being	-4.2	6.2	-16.8	7.6	24	8	0
	Social	-5.2	14.1	-31.4	32.7	20	12	0
	Economy	13.3	7.6	-0.5	33.4	1	31	0
	Sustainability	5.8	3.7	-2.6	11.6	3	29	0
	Infrastructure	4.5	4.2	-5.5	12.8	2	30	0

Table B.3. Summary statistics for all available data for the Americas. Last three columns show total countries with negative, positive and no changes, respectively. Continues over the page.

Variable type	Variable	Mean	St. dev.	Min	Max	Total -ve	Total +ve	Total zero
Outcome	Net forest cover change 2017-2020 (%) (GFRA)	-.318	.762	-2.492	1.076	20	5	3
	% Tree cover loss 2017-2020 (GFW)	2.535	1.741	.365	6.712	-	-	-
2017 Goal values	SDGI (all goals)	66.8	6.1	44.1	78	-	-	-
	Goal 1. Poverty	92.2	13.3	33.8	100	-	-	-
	Goal 2. Food	53.9	8.0	39.6	70	-	-	-
	Goal 3. Health	78.4	9.9	44.6	94.7	-	-	-
	Goal 4. Education	77.7	11.3	46.7	98.8	-	-	-
	Goal 5. Gender	68.4	8.7	38.1	82.2	-	-	-
	Goal 6. Water	87.3	9.5	54.4	98.5	-	-	-
	Goal 7. Energy	79.6	15.3	18.4	99.9	-	-	-
	Goal 8. Economy	64.6	12.6	37.8	90.5	-	-	-
	Goal 9. Industry	30.0	18.3	2.3	84.4	-	-	-
	Goal 10. Equality	38.6	15.4	0	76.7	-	-	-
	Goal 11. Cities	86.5	10.5	44	99.6	-	-	-
	Goal 12. Production	68.9	10.7	38.2	80.9	-	-	-
	Goal 13. Climate	79.8	12.2	44.6	91	-	-	-
	Goal 16. Justice	53.6	10.8	31.2	86	-	-	-
2017 Group values	Well-being	74.9	8.9	39.5	86.5	-	-	-
	Social	53.5	9.2	28.0	80.8	-	-	-
	Economy	71.1	11.4	42.3	91.3	-	-	-
	Sustainability	78.6	7.4	60.1	87.1	-	-	-
	Infrastructure	65.4	13.0	21.6	90.0	-	-	-

Table B.3. (Continued from previous page).

Variable type	Variable	Mean	St. dev.	Min	Max	Total -ve	Total +ve	Total zero
2017-2020 Goal changes	SDGI (all goals)	2.4	3.5	-4.9	7.6	6	22	0
	Goal 1. Poverty	-8.3	11.6	-56.9	5.8	26	2	0
	Goal 2. Food	2.4	3.5	-4.8	9.4	6	22	0
	Goal 3. Health	-1.9	3.4	-12.8	3.3	22	6	0
	Goal 4. Education	7.6	10.5	-12.7	33.6	6	22	0
	Goal 5. Gender	1.7	2.6	-3.9	7.0	6	22	0
	Goal 6. Water	-12.2	7.0	-36.6	-0.7	28	0	0
	Goal 7. Energy	6.2	4.5	-7.5	15.0	2	26	0
	Goal 8. Economy	9.8	9.9	-6.1	31.4	4	24	0
	Goal 9. Industry	6.4	7.5	-14.1	18.1	5	23	0
	Goal 10. Equality	0.9	15.4	-34.5	60.5	13	15	0
	Goal 11. Cities	-7.3	10.7	-39.9	13.9	20	8	0
	Goal 12. Production	7.0	8.6	-22.4	17.3	4	24	0
	Goal 13. Climate	4.6	8.2	-23.8	18.2	5	23	0
	Goal 16. Justice	7.2	6.2	-4.3	20.5	3	25	0
2017-2020 Theme changes	Well-being	-2.6	5.0	-24.9	1.1	19	9	0
	Social	9.8	15.5	-26.3	62.2	5	23	0
	Economy	8.7	7.8	-3.0	30.4	2	26	0
	Sustainability	-0.2	4.5	-13.6	7.5	11	17	0
	Infrastructure	1.8	4.9	-9.8	8.8	7	21	0

Table B.4. Summary statistics for all available data for Asia. Last three columns show total countries with negative, positive and no changes, respectively. Continues over the page.

Variable type	Variable	Mean	St. dev.	Min	Max	Total -ve	Total +ve	Total zero
Outcome	Net forest cover change 2017-2020 (%) (GFRA)	-.174	.734	-2.646	.734	11	8	4
	% Tree cover loss 2017-2020 (GFW)	2.783	2.530	0.017	8.343	-	-	-
2017 Goal values	SDGI (all goals)	66.4	5.8	56.2	80.2	-	-	-
	Goal 1. Poverty	96.5	4.0	86.1	100	-	-	-
	Goal 2. Food	53.7	10.3	36.9	76.5	-	-	-
	Goal 3. Health	73.9	13.1	55.2	94.3	-	-	-
	Goal 4. Education	78.0	14.1	48	96.4	-	-	-
	Goal 5. Gender	58.5	11.0	33.3	76.4	-	-	-
	Goal 6. Water	84.8	6.6	71.2	95.1	-	-	-
	Goal 7. Energy	69.8	18.9	33.4	90.8	-	-	-
	Goal 8. Economy	66.9	13.7	43.7	95	-	-	-
	Goal 9. Industry	36.6	23.7	10.5	87.3	-	-	-
	Goal 10. Equality	65.9	13.2	37.7	85.1	-	-	-
	Goal 11. Cities	69.3	22.9	14	95.1	-	-	-
	Goal 12. Production	71.4	11.5	39.6	84.5	-	-	-
	Goal 13. Climate	78.1	10.5	48.1	91.1	-	-	-
	Goal 16. Justice	67.8	9.6	54.6	89.8	-	-	-
2017 Group values	Well-being	74.7	7.9	61.8	89.4	-	-	-
	Social	64.1	5.3	54.8	76.7	-	-	-
	Economy	72.4	11.5	53.7	94.3	-	-	-
	Sustainability	78.1	5.9	60.1	85.4	-	-	-
	Infrastructure	58.6	19.2	23.5	90.06667	-	-	-

Table B.4. (Continued from previous page).

Variable type	Variable	Mean	St. dev.	Min	Max	Total -ve	Total +ve	Total zero
2017-2020 Goal changes	SDGI (all goals)	2.9	2.6	-2.0	7.3	3	20	0
	Goal 1. Poverty	-7.9	10.5	-31.5	4.4	19	4	0
	Goal 2. Food	6.3	4.2	-1.6	12.5	2	21	0
	Goal 3. Health	-1.1	2.5	-7.4	3.7	15	8	0
	Goal 4. Education	10.8	10.2	-1.5	36.2	3	20	0
	Goal 5. Gender	0.3	4.2	-13.1	4.7	7	16	0
	Goal 6. Water	-14.5	5.1	-29.6	-5.7	23	0	0
	Goal 7. Energy	7.8	6.5	-6.5	25.5	1	22	0
	Goal 8. Economy	8.2	11.1	-24.7	30.5	4	19	0
	Goal 9. Industry	11.8	6.8	-3.0	32.3	1	22	0
	Goal 10. Equality	-5.4	15.6	-39.3	18.2	14	9	0
	Goal 11. Cities	4.3	16.7	-23.4	41.9	8	15	0
	Goal 12. Production	10.6	9.0	-25.5	21.5	1	22	0
	Goal 13. Climate	9.6	12.1	-14.5	33.6	4	19	0
	Goal 16. Justice	2.2	7.0	-8.3	14.3	10	13	0
2017-2020 Theme changes	Well-being	-0.9	3.0	-7.2	2.9	13	10	0
	Social	-2.9	17.6	-30.4	26.0	12	11	0
	Economy	9.5	8.6	-8.6	28.7	3	20	0
	Sustainability	1.9	5.5	-12.3	12.9	7	16	0
	Infrastructure	8.0	6.8	-3.9	23.4	2	21	0

Table B.5. Summary statistics for all available data for Europe. Last three columns show total countries with negative, positive and no changes, respectively. Continues over the page.

Variable type	Variable	Mean	St. dev.	Min	Max	Total -ve	Total +ve	Total zero
Outcome	Net forest cover change 2017-2020 (%) (GFRA)	.075	.014	-.302	.548	3	20	16
	% Tree cover loss 2017-2020 (GFW)	2.314	1.513	.276	6.321	-	-	-
2017 Goal values	SDGI (all goals)	76.6	4.8	65.5	85.6	-	-	-
	Goal 1. Poverty	99.5	0.5	97.6	100	-	-	-
	Goal 2. Food	63.2	10.1	28.9	80.4	-	-	-
	Goal 3. Health	87.7	7.8	67	97.6	-	-	-
	Goal 4. Education	90.5	4.9	79.1	99.8	-	-	-
	Goal 5. Gender	71.3	11.2	39.2	87.9	-	-	-
	Goal 6. Water	93.6	3.3	84.6	98	-	-	-
	Goal 7. Energy	85.0	7.6	65.7	97.5	-	-	-
	Goal 8. Economy	76.5	12.5	49.2	95.8	-	-	-
	Goal 9. Industry	57.2	21.6	23.3	93.9	-	-	-
	Goal 10. Equality	82.7	12.6	47	100	-	-	-
	Goal 11. Cities	92.2	6.0	72.2	100	-	-	-
	Goal 12. Production	59.5	10.8	34.3	80.4	-	-	-
	Goal 13. Climate	79.1	10.9	30.1	94.4	-	-	-
	Goal 16. Justice	71.4	12.8	35.3	91.8	-	-	-
2017 Group values	Well-being	83.5	5.4	68.3	91.1	-	-	-
	Social	75.1	9.2	51.6	91.6	-	-	-
	Economy	83.5	7.9	64.2	96.7	-	-	-
	Sustainability	77.4	6.0	59.4	87.0	-	-	-
	Infrastructure	78.1	10.7	54.1	95.7	-	-	-

Table B.5. (Continued from previous page).

Variable type	Variable	Mean	St. dev.	Min	Max	Total -ve	Total +ve	Total zero
2017-2020 Goal changes	SDGI (all goals)	0.9	1.8	-3.2	8.0	11	27	1
	Goal 1. Poverty	-0.6	1.6	-9.5	0.8	33	4	2
	Goal 2. Food	0.5	6.1	-11.1	21.2	23	16	0
	Goal 3. Health	0.2	1.3	-2.2	3.3	20	19	0
	Goal 4. Education	4.8	5.5	-18.9	15.8	4	35	0
	Goal 5. Gender	2.6	2.8	-4.1	9.8	5	34	0
	Goal 6. Water	-9.7	6.3	-24.6	0.3	38	1	0
	Goal 7. Energy	5.7	3.1	0.0	13.8	0	38	1
	Goal 8. Economy	3.4	9.8	-22.5	25.0	14	25	0
	Goal 9. Industry	13.1	5.8	2.8	23.3	0	39	0
	Goal 10. Equality	-5.6	11.0	-46.1	7.6	24	15	0
	Goal 11. Cities	-9.2	5.8	-23.1	2.0	36	3	0
	Goal 12. Production	2.1	7.6	-14.1	20.1	15	24	0
	Goal 13. Climate	-8.2	14.5	-58.9	25.1	28	11	0
	Goal 16. Justice	8.3	5.6	-1.6	18.0	2	37	0
2017-2020 Theme changes	Well-being	0.0	2.1	-3.9	7.3	24	15	0
	Social	5.3	10.7	-33.3	19.7	7	32	0
	Economy	4.1	5.2	-6.6	15.5	7	32	0
	Sustainability	-5.3	5.3	-21.3	5.3	35	4	0
	Infrastructure	3.2	2.7	-1.5	8.3	3	36	0

Tables B.6. (A1 – N4) Results from individual OLS regressions using all goal-level predictors and forest-based outcome variables included in this work, and including an interaction term with the categorical variable 'Region'. Tables are ordered first by SDG (A-N), and next by the combination of predictor and outcome type, as follows: 2017 SDGI values combined with net change in forest cover (GFRA data) (A1-N1); Change in SDGI values between 2017 and 2021 combined with net change in forest cover (GFRA data) (A2-N2); 2017 SDGI values combined with percentage tree cover loss (GFW data) (A3-N3); and Change in SDGI values between 2017 and 2021 combined with percentage tree cover loss (GFW data) (A4-N4). The following alpha values apply throughout: * = <.05, ** = <.01, * = <.001.**

A1. Goal 1, predictor = 2017 SDGI values, outcome = GFRA

	Coefficient	Std. error
(Intercept)	-0.84278	0.203949***
G1	0.005944	0.003445
RegionAsia	-2.34273	2.890373
RegionAmericas	-0.01138	0.781622
RegionEurope	7.34161	16.68101
G1:RegionAsia	0.025253	0.03004
G1:RegionAmericas	-0.00014	0.008801
G1:RegionEurope	-0.07051	0.167703

R^2 = .189
Adj. R^2 = .139
$F(7, 114)$ = 3.81***

A2. Goal 1, predictor = 2017-2020 change in SDGI values, outcome = GFRA

	Coefficient	Std. error
(Intercept)	-0.64238	0.146563***
Change_G1	-0.00559	0.005581
RegionAsia	0.530648	0.208818*
RegionAmericas	0.390509	0.197578
RegionEurope	0.720456	0.175739***
Change_G1:RegionAsia	0.013498	0.012756
Change_G1:RegionAmericas	0.013632	0.010938
Change_G1:RegionEurope	0.009913	0.056575

R^2 = .172
Adj. R^2 = .121
$F(7, 114)$ = 3.38***

A3. Goal 1, predictor = 2017 SDGI values, outcome = GFW

	Coefficient	Std. error
(Intercept)	6.366026	0.882725***
G1	-0.04826	0.014909**
RegionAsia	8.462085	12.51001
RegionAmericas	-3.92833	3.382988
RegionEurope	21.75573	72.61146
G1:RegionAsia	-0.07652	0.130019
G1:RegionAmericas	0.049316	0.038092
G1:RegionEurope	-0.21116	0.729989

R^2 = .148
Adj. R^2 = .095
$F(7, 114)$ = 2.78*

A4. Goal 1, predictor = 2017-2020 change in SDGI values, outcome = GFW

	Coefficient	Std. error
(Intercept)	4.83789	0.643211***
Change_G1	0.050555	0.024492*
RegionAsia	-2.32275	0.916428*
RegionAmericas	-2.30657	0.867096**
RegionEurope	-2.38241	0.776894**
Change_G1:RegionAsia	-0.08465	0.055982
Change_G1:RegionAmericas	-0.05105	0.048003
Change_G1:RegionEurope	0.182439	0.248321

R^2 = .105
Adj. R^2 = .049
$F(7, 114)$ = 1.88

B1. Goal 2, predictor = 2017 SDGI values, outcome = GFRA

	Coefficient	Std. error
(Intercept)	-0.65335	0.617454
G2	0.002811	0.014504
RegionAsia	0.328652	0.892829
RegionAmericas	-0.03944	0.973293
RegionEurope	0.593745	0.854182
G2:RegionAsia	-1.06E-06	0.018703
G2:RegionAmericas	0.004132	0.020026
G2:RegionEurope	-0.00068	0.017186

R^2 = .158
Adj. R^2 = .107
$F(7, 114)$ = 3.07**

B2. Goal 2, predictor = 2017-2020 change in SDGI values, outcome = GFRA

	Coefficient	Std. error
(Intercept)	-0.57681***	0.166681
Change_G2	0.005904	0.018944
RegionAsia	0.392409	0.274549
RegionAmericas	0.37135	0.212339
RegionEurope	0.652016***	0.189946
Change_G2:RegionAsia	-0.00424	0.034627
Change_G2:RegionAmericas	-0.05244	0.036693
Change_G2:RegionEurope	-0.00536	0.024159

R^2 = .173
Adj. R^2 = .122
$F(7, 114)$ = 3.40**

B3. Goal 2, predictor = 2017 SDGI values, outcome = GFW

	Coefficient	Std. error
(Intercept)	1.207791	2.738045
G2	0.063382	0.064317
RegionAsia	1.025794	3.959171
RegionAmericas	1.162975	4.315981
RegionEurope	-0.50135	3.799031
G2:RegionAsia	-0.05314	0.082939
G2:RegionAmericas	-0.06033	0.088803
G2:RegionEurope	-0.03802	0.076276

$R^2 = .072$
Adj. $R^2 = .014$
$F(7, 114) = 1.24$

B4. Goal 2, predictor = 2017-2020 change in SDGI values, outcome =GFW

	Coefficient	Std. error
(Intercept)	4.105217***	0.746399
Change_G2	-0.03351	0.08483
RegionAsia	-1.48703	1.229436
RegionAmericas	-1.61409	0.95086
RegionEurope	-1.7514*	0.856306
Change_G2:RegionAsia	0.0596	0.15506
Change_G2:RegionAmericas	0.051739	0.164314
Change_G2:RegionEurope	-0.02785	0.10847

$R^2 = .069$
Adj. $R^2 = .011$
$F(7, 114) = 1.18$

C1. Goal 3, predictor = 2017 SDGI values, outcome = GFRA

	Coefficient	Std. error
(Intercept)	-1.22614**	0.373006
G3	0.015155	0.007899
RegionAsia	0.097341	0.770326
RegionAmericas	-0.65687	0.927828
RegionEurope	1.137439	1.073203
G3:RegionAsia	-0.00223	0.011964
G3:RegionAmericas	0.004799	0.013343
G3:RegionEurope	-0.01328	0.013892

R^2 = .219
Adj. R^2 = .171
$F(7, 114)$ = 4.57***

C2. Goal 3, predictor = 2017-2020 change in SDGI values, outcome = GFRA

	Coefficient	Std. error
(Intercept)	-0.55075	0.101058
Change_G3	-0.0278	0.026056
RegionAsia	0.328562*	0.163949
RegionAmericas	0.17525	0.160093
RegionEurope	0.624165***	0.136426
Change_G3:RegionAsia	-0.01591	0.054139
Change_G3:RegionAmericas	-0.00149	0.041579
Change_G3:RegionEurope	0.038682	0.077709

R^2 = .176
Adj. R^2 = .126
$F(7, 114)$ = 3.49**

C3. Goal 3, predictor = 2017 SDGI values, outcome = GFW

	Coefficient	Std. error
(Intercept)	9.443566***	1.624945
G3	-0.12228***	0.034411
RegionAsia	-3.86407	3.355814
RegionAmericas	-4.37743	4.041947
RegionEurope	-10.2979*	4.723189
G3:RegionAsia	0.08444	0.052121
G3:RegionAmericas	0.09	0.058126
G3:RegionEurope	0.158519*	0.061125

R^2 = .168
Adj. R^2 = .116
$F(7, 114)$ = 3.24**

C4. Goal 3, predictor = 2017-2020 change in SDGI values, outcome = GFW

	Coefficient	Std. error
(Intercept)	3.960978***	0.447116
Change_G3	0.164391	0.115281
RegionAsia	-1.37972	0.725363
RegionAmericas	-1.0895	0.708306
RegionEurope	-1.63204**	0.609623
Change_G3:RegionAsia	-0.34717	0.239531
Change_G3:RegionAmericas	0.008122	0.183959
Change_G3:RegionEurope	-0.2614	0.348333

R^2 = .095
Adj. R^2 = .039
$F(7, 114)$ = 1.68

D1. Goal 4, predictor = 2017 SDGI values, outcome = GFRA

	Coefficient	Std. error
(Intercept)	-0.7863***	0.240519
G4	0.005211	0.004561
RegionAsia	-0.19511	0.704782
RegionAmericas	-1.20051	0.778386
RegionEurope	0.734987	1.675165
G4:RegionAsia	0.005145	0.009529
G4:RegionAmericas	0.016266	0.010479
G4:RegionEurope	-0.00381	0.018843

R^2 = .211
Adj. R^2 = .163
$F(7, 114)$ = 4.37***

D2. Goal 4, predictor = 2017-2020 change in SDGI values, outcome = GFRA

	Coefficient	Std. error
(Intercept)	-0.54355***	0.119286
Change_G4	0.001609	0.012434
RegionAsia	0.27301	0.212514
RegionAmericas	0.266223	0.179272
RegionEurope	0.637985***	0.170111
Change_G4:RegionAsia	0.007311	0.017251
Change_G4:RegionAmericas	-0.00704	0.01626
Change_G4:RegionEurope	-0.00559	0.02086

R^2 = .163
Adj. R^2 = .111
$F(7, 114)$ = 3.16**

D3. Goal 4, predictor = 2017 SDGI values, outcome = GFW

	Coefficient	Std. error
(Intercept)	4.530335***	1.079518
G4	-0.01372	0.020472
RegionAsia	2.078118	3.163263
RegionAmericas	1.935413	3.493619
RegionEurope	-14.3361	7.778826
G4:RegionAsia	-0.03534	0.042768
G4:RegionAmericas	-0.03688	0.047032
G4:RegionEurope	0.147607	0.087411

$R^2 = .109$
Adj. $R^2 = .053$
$F(7, 114) = 1.95$

D4. Goal 4, predictor = 2017-2020 change in SDGI values, outcome = GFW

	Coefficient	Std. error
(Intercept)	3.586124***	0.530674
Change_G4	0.055337	0.055314
RegionAsia	-0.98715	0.945422
RegionAmericas	-1.12285	0.797539
RegionEurope	-1.30604	0.7614
Change_G4:RegionAsia	-0.03833	0.076746
Change_G4:RegionAmericas	-0.04581	0.072338
Change_G4:RegionEurope	-0.04782	0.09464

$R^2 = .070$
Adj. $R^2 = .017$
$F(7, 114) = 1.20$

E1. Goal 5, predictor = 2017 SDGI values, outcome = GFRA

	Coefficient	Std. error
(Intercept)	-0.72866*	0.351854
G5	0.003784	0.006598
RegionAsia	0.838176	0.74597
RegionAmericas	-0.25773	0.935583
RegionEurope	0.749436	0.692412
G5:RegionAsia	-0.00863	0.012872
G5:RegionAmericas	0.005978	0.014198
G5:RegionEurope	-0.00302	0.010575

R^2 = .164
Adj. R^2 = .113
$F(7, 114)$ = 3.20**

E2. Goal 5, predictor = 2017-2020 change in SDGI values, outcome = GFRA

	Coefficient	Std. error
(Intercept)	-0.53291***	0.108239
Change_G5	-0.00179	0.029405
RegionAsia	0.358033*	0.160983
RegionAmericas	0.178318	0.168762
RegionEurope	0.539134***	0.165183
Change_G5:RegionAsia	0.005654	0.041231
Change_G5:RegionAmericas	0.022808	0.05102
Change_G5:RegionEurope	0.028577	0.044117

R^2 = .163
Adj. R^2 = .111
$F(7, 114)$ = 3.17**

E3. Goal 5, predictor = 2017 SDGI values, outcome = GFW

	Coefficient	Std. error
(Intercept)	4.232583**	1.539999
G5	-0.0071	0.028877
RegionAsia	-5.30064	3.26497
RegionAmericas	-0.16645	4.094867
RegionEurope	-6.49093*	3.058917
G5:RegionAsia	0.072897	0.056338
G5:RegionAmericas	-0.01527	0.062142
G5:RegionEurope	0.071667	0.046828

R^2 = .103
Adj. R^2 = .045
$F_{(7, 114)}$ = 1.81

E4. Goal 5, predictor = 2017-2020 change in SDGI values, outcome = GFW

	Coefficient	Std. error
(Intercept)	3.370688***	0.465919
Change_G5	0.372872**	0.126576
RegionAsia	-0.58167	0.692958
RegionAmericas	-0.7906	0.726442
RegionEurope	-1.21288	0.722291
Change_G5:RegionAsia	-0.39581*	0.177479
Change_G5:RegionAmericas	-0.39886	0.219618
Change_G5:RegionEurope	-0.31365	0.190398

R^2 = .129
Adj. R^2 = .075
*$F_{(7, 114)}$ = 2.38**

F1. Goal 6, predictor = 2017 SDGI values, outcome = GFRA

	Coefficient	Std. error
(Intercept)	-1.07003	0.575286
G6	0.008426	0.008931
RegionAsia	-2.61183	1.636071
RegionAmericas	0.345709	1.149363
RegionEurope	1.670718	2.63571
G6:RegionAsia	0.032918	0.020093
G6:RegionAmericas	-0.00377	0.014434
G6:RegionEurope	-0.01404	0.028891

R^2 = .201
Adj. R^2 = .156
$F_{(7, 114)}$ = 4.09***

F2. Goal 6, predictor = 2017-2020 change in SDGI values, outcome = GFRA

	Coefficient	Std. error
(Intercept)	-0.6107***	0.179086
Change_G6	-0.00708	0.013955
RegionAsia	-0.12684	0.404431
RegionAmericas	0.382706	0.281667
RegionEurope	0.695895**	0.245045
Change_G6:RegionAsia	-0.0319	0.027517
Change_G6:RegionAmericas	0.014487	0.020869
Change_G6:RegionEurope	0.008079	0.020115

R^2 = .179
Adj. R^2 = .128
$F_{(7, 114)}$ = 3.55**

F3. Goal 6, predictor = 2017 SDGI values, outcome = GFW

	Coefficient	Std. error
(Intercept)	11.2743***	2.526604
G6	-0.11668**	0.039224
RegionAsia	-3.16014	7.18548
RegionAmericas	-8.40646	5.047899
RegionEurope	-13.4797	11.87818
G6:RegionAsia	0.053848	0.088247
G6:RegionAmericas	0.112868	0.063393
G6:RegionEurope	0.16508	0.130258

R^2 = .135
Adj. R^2 = .081
$F(7, 114)$ = 2.49*

F4. Goal 6, predictor = 2017-2020 change in SDGI values, outcome = GFW

	Coefficient	Std. error
(Intercept)	2.803418**	0.926113
Change_G6	0.049422	0.037827
RegionAsia	0.424787	1.130082
RegionAmericas	-1.05409	1.140454
RegionEurope	-0.34458	1.021563
Change_G8:RegionAsia	-0.10353	0.060727
Change_G8:RegionAmericas	0.030793	0.061333
Change_G8:RegionEurope	-0.09135	0.05592

R^2 = .114
Adj. R^2 = .059
$F(7, 114)$ = 2.06

G1. Goal 7, predictor = 2017 SDGI values, outcome = GFRA

	Coefficient	Std. error
(Intercept)	-0.72395***	0.150893
G7	0.006364	0.003941
RegionAsia	-0.74341	0.465315
RegionAmericas	-0.38881	0.571319
RegionEurope	0.457791	0.989172
G7:RegionAsia	0.012168	0.007259
G7:RegionAmericas	0.003618	0.007864
G7:RegionEurope	-0.00234	0.012116

R² = .249
Adj. R² = .201
F(7, 114) = 5.40***

G2. Goal 7, predictor = 2017-2020 change in SDGI values, outcome = GFRA

	Coefficient	Std. error
(Intercept)	-0.55681***	0.157081
Change_G7	0.003133	0.018199
RegionAsia	0.91374***	0.23766
RegionAmericas	0.272261	0.235668
RegionEurope	0.661753**	0.241763
Change_G7:RegionAsia	-0.07088**	0.02537
Change_G7:RegionAmericas	-0.00857	0.029293
Change_G7:RegionEurope	-0.00833	0.033925

R² = .253
Adj. R² = .207
F(7, 114) = 5.51***

G3. Goal 7, predictor = 2017 SDGI values, outcome = GFW

	Coefficient	Std. error
'(Intercept)	5.179708***	0.677585
G7	-0.04419*	0.017697
RegionAsia	1.602089	2.089501
RegionAmericas	-0.47476	2.565512
RegionEurope	-5.7575	4.477085
G7:RegionAsia	-0.0131	0.032598
G7:RegionAmericas	0.016929	0.035311
G7:RegionEurope	0.078284	0.05488

$R^2 = .150$
Adj. $R^2 = .097$
$F(7, 114) = 2.83**$

G4. Goal 7, predictor = 2017-2020 change in SDGI values, outcome = GFW

	Coefficient	Std. error
(Intercept)	5.145643***	0.710269
Change_G7	-0.18591*	0.082289
RegionAsia	-3.8337***	1.074622
RegionAmericas	-2.81106**	1.065613
RegionEurope	-3.03348**	1.104313
Change_G7:RegionAsia	0.373667**	0.114715
Change_G7:RegionAmericas	0.218108	0.132452
Change_G7:RegionEurope	0.221463	0.154542

$R^2 = .143$
Adj. $R^2 = .092$
$F(7, 114) = 2.67*$

H1. Goal 8, predictor = 2017 SDGI values, outcome = GFRA

	Coefficient	Std. error
(Intercept)	-1.24535**	0.390983
G8	0.016373	0.008747
RegionAsia	0.746325	0.690205
RegionAmericas	-0.9183	0.666687
RegionEurope	1.156109	0.667381
G8:RegionAsia	-0.01151	0.012083
G8:RegionAmericas	0.012192	0.011997
G8:RegionEurope	-0.01422	0.011191

$R^2 = .26$
Adj. $R^2 = .215$
$F(7, 114) = 5.72$***

H2. Goal 8, predictor = 2017-2020 change in SDGI values, outcome = GFRA

	Coefficient	Std. error
(Intercept)	-0.16568	0.203653
Change_G8	-0.01713*	0.008318
RegionAsia	-0.0668	0.248506
RegionAmericas	0.127406	0.250787
RegionEurope	0.250268	0.223665
Change_G8:RegionAsia	0.024256	0.013354
Change_G8:RegionAmericas	-0.01146	0.013487
Change_G8:RegionEurope	0.014447	0.01229

$R^2 = .237$
Adj. $R^2 = .189$
$F(7, 114) = 5.05$***

H3. Goal 8, predictor = 2017 SDGI values, outcome = GFW

	Coefficient	Std. error
(Intercept)	5.406329**	1.813357
G8	-0.03544	0.040568
RegionAsia	-4.00644	3.201135
RegionAmericas	0.568553	3.092057
RegionEurope	-7.25835*	3.097202
G8:RegionAsia	0.056114	0.056042
G8:RegionAmericas	-0.01781	0.055642
G8:RegionEurope	0.090045	0.051962

$R^2 = .107$
Adj. $R^2 = .051$
$F(7, 114) = 1.91$

H4. Goal 8, predictor = 2017-2020 change in SDGI values, outcome = GFW

	Coefficient	Std. error
(Intercept)	5.956016***	0.760351
Change_G8	0.195852**	0.059249
RegionAsia	-2.07275	1.717107
RegionAmericas	-3.31314**	1.195884
RegionEurope	-2.53508*	1.056557
Change_G6:RegionAsia	-0.11978	0.116828
Change_G6:RegionAmericas	-0.18705*	0.088603
Change_G6:RegionEurope	-0.08388	0.0862

$R^2 = .169$
Adj. $R^2 = .117$
$F(7, 114) = 3.26**$

I1. Goal 9, predictor = 2017 SDGI values, outcome = GFRA

	Coefficient	Std. error
(Intercept)	-0.77063***	0.172307
G9	0.017994	0.01086
RegionAsia	0.457142	0.275539
RegionAmericas	0.048918	0.266176
RegionEurope	0.78997*	0.306209
G9:RegionAsia	-0.01418	0.011938
G9:RegionAmericas	-0.00453	0.012316
G9:RegionEurope	-0.01701	0.011624

$R^2 = .216$
Adj. R^2 = .168
F(7, 114) = 4.49***

I2. Goal 9, predictor = 2017-2020 change in SDGI values, outcome = GFRA

	Coefficient	Std. error
(Intercept)	-0.64334***	0.13918
Change_G9	0.020853	0.018853
RegionAsia	0.267028	0.275745
RegionAmericas	0.172143	0.19817
RegionEurope	0.705393**	0.263268
Change_G9:RegionAsia	-0.00367	0.025794
Change_G9:RegionAmericas	0.002862	0.023754
Change_G9:RegionEurope	-0.01983	0.024506

$R^2 = .191$
Adj. R^2 = .141
F(7, 114) = 3.83***

I3. Goal 9, predictor = 2017 SDGI values, outcome = GFW

	Coefficient	Std. error
(Intercept)	4.729624***	0.784345
G9	-0.06576	0.049433
RegionAsia	-1.57694	1.254258
RegionAmericas	-1.7006	1.211638
RegionEurope	-3.5665*	1.403614
G9:RegionAsia	0.055669	0.054343
G9:RegionAmericas	0.049275	0.056063
G9:RegionEurope	0.086124	0.053049

R^2 = .088
Adj. R^2 = .032
$F(7, 114)$ = 1.55

I4. Goal 9, predictor = 2017-2020 change in SDGI values, outcome = GFW

	Coefficient	Std. error
(Intercept)	4.151218***	0.631756
Change_G9	-0.05435	0.085574
RegionAsia	-1.45769	1.251644
RegionAmericas	-1.68601	0.899521
RegionEurope	-1.95053	1.219756
Change_G9:RegionAsia	0.061963	0.117084
Change_G9:RegionAmericas	0.065244	0.107821
Change_G9:RegionEurope	0.063006	0.112266

R^2 = .064
Adj. R^2 = .006
$F(7, 114)$ = 1.09

J1. Goal 10, predictor = 2017 SDGI values, outcome = GFRA

	Coefficient	Std. error
(Intercept)	-0.54834*	0.254197
G10	0.00026	0.004666
RegionAsia	0.676939	0.667421
RegionAmericas	-0.10906	0.389148
RegionEurope	0.83901	0.659956
G10:RegionAsia	-0.00485	0.010311
G10:RegionAmericas	0.008527	0.008507
G10:RegionEurope	-0.00286	0.008652

R^2 = .17
Adj. R^2 = .119
$F(7, 114)$ = 3.33**

J2. Goal 10, predictor = 2017-2020 change in SDGI values, outcome = GFRA

	Coefficient	Std. error
(Intercept)	-0.5563***	0.102224
Change_G10	-0.00744	0.007645
RegionAsia	0.372844*	0.161427
RegionAmericas	0.246599	0.147977
RegionEurope	0.639413***	0.144369
Change_G10:RegionAsia	0.00565	0.010881
Change_G10:RegionAmericas	-0.00263	0.010411
Change_G10:RegionEurope	0.008793	0.011308

R^2 = .178
Adj. R^2 = .127
$F(7, 114)$ = 3.52**

J3. Goal 10, predictor = 2017 values, outcome = GFW

	Coefficient	Std. error
(Intercept)	2.207806	1.121862
G10	0.033203	0.020592
RegionAsia	2.851542	2.945567
RegionAmericas	1.309532	1.71745
RegionEurope	0.246067	2.986874
G10:RegionAsia	-0.06776	0.045505
G10:RegionAmericas	-0.05866	0.037545
G10:RegionEurope	-0.03488	0.038795

$R^2 = .093$
Adj. R^2 = .036
$F(7, 114) = 1.63$

J4. Goal 10, predictor = 2017-2020 change in SDGI values, outcome = GFW

	Coefficient	Std. error
(Intercept)	3.775916***	0.455184
Change_G10	-0.03319	0.03404
RegionAsia	-0.77775	0.718806
RegionAmericas	-1.25942	0.658913
RegionEurope	-1.34932*	0.650253
Change_G10:RegionAsia	0.073337	0.04845
Change_G10:RegionAmericas	0.054971	0.04636
Change_G10:RegionEurope	0.053052	0.050551

$R^2 = .085$
Adj. R^2 = .028
$F(7, 114) = 1.49$

K1. Goal 11, predictor = 2017 SDGI values, outcome = GFRA

	Coefficient	Std. error
(Intercept)	-0.84618*	0.32896
G11	0.005725	0.005768
RegionAsia	0.628947	0.506296
RegionAmericas	-0.16445	0.967769
RegionEurope	0.683714	1.446834
G11:RegionAsia	-0.0051	0.007824
G11:RegionAmericas	0.002273	0.011931
G11:RegionEurope	-0.00314	0.016311

$R^2 = .168$
Adj. R^2 = .117
$F(7, 114) = 3.28**$

K2. Goal 11, predictor = 2017-2020 change in SDGI values, outcome = GFRA

	Coefficient	Std. error
(Intercept)	-0.52389***	0.101266
Change_G11	-0.00769	0.008535
RegionAsia	0.377726*	0.158936
RegionAmericas	0.227665	0.165707
RegionEurope	0.561073**	0.200203
Change_G11:RegionAsia	0.001211	0.011197
Change_G11:RegionAmericas	0.010723	0.013352
Change_G11:RegionEurope	0.00353	0.018103

$R^2 = .168$
Adj. R^2 = .117
$F(7, 114) = 3.28**$

K3. Goal 11, predictor = 2017 SDGI values, outcome = GFW

	Coefficient	Std. error
(Intercept)	5.795838***	1.44411
G11	-0.03547	0.025322
RegionAsia	-2.91245	2.222603
RegionAmericas	-3.37663	4.248434
RegionEurope	-14.4715*	6.557314
G11:RegionAsia	0.034027	0.034347
G11:RegionAmericas	0.036816	0.052375
G11:RegionEurope	0.15521*	0.07401

$R^2 = .099$
Adj. $R^2 = .044$
$F(7, 114) = 1.78$

K4. Goal 11, predictor = 2017-2020 change in SDGI values, outcome = GFW

	Coefficient	Std. error
(Intercept)	3.88963***	0.452373
Change_G11	-0.01348	0.038126
RegionAsia	-1.22637	0.709995
RegionAmericas	-1.23257	0.740243
RegionEurope	-1.74572	0.901549
Change_G11:RegionAsia	0.041515	0.050017
Change_G11:RegionAmericas	0.030076	0.059647
Change_G11:RegionEurope	-0.00593	0.084076

$R^2 = .069$
Adj. $R^2 = .011$
$F(7, 114) = 1.19$

L1. Goal 12, predictor = 2017 SDGI values, outcome = GFRA

	Coefficient	Std. error
(Intercept)	1.319554	1.075942
G12	-0.02406	0.013899
RegionAsia	-1.27172	1.313815
RegionAmericas	-1.04227	1.288655
RegionEurope	-1.16474	1.191467
G12:RegionAsia	0.020959	0.017377
G12:RegionAmericas	0.015415	0.017228
G12:RegionEurope	0.022731	0.016272

R^2 = .183
Adj. R^2 = .133
$F(7, 114)$ = 3.66**

L2. Goal 12, predictor = 2017-2020 change in SDGI values, outcome = GFW

	Coefficient	Std. error
(Intercept)	-0.4118	0.233519
Change_G12	-0.00974	0.016655
RegionAsia	0.1057	0.297408
RegionAmericas	0.215664	0.271551
RegionEurope	0.485016	0.25165
Change_G12:RegionAsia	0.022236	0.021361
Change_G12:RegionAmericas	-0.00773	0.0209
Change_G12:RegionEurope	0.010844	0.020558

R^2 = .179
Adj. R^2 = .128
$F(7, 114)$ = 3.54**

L3. Goal 12, predictor = 2017 SDGI values, outcome = GFW

	Coefficient	Std. error
(Intercept)	-5.86142	4.77659
G12	0.126244*	0.061702
RegionAsia	9.117838	5.832616
RegionAmericas	6.745683	5.720922
RegionEurope	7.702636	5.306694
G12:RegionAsia	-0.13287	0.077142
G12:RegionAmericas	-0.10227	0.076481
G12:RegionEurope	-0.11834	0.072462

$R^2 = .097$
Adj. R^2 = .04
$F(7, 114) = 1.71$

L4. Goal 12, predictor = 2017-2020 change in SDGI values, outcome = GFW

	Coefficient	Std. error
(Intercept)	1.814602	1.020392
Change_G12	0.162149*	0.072776
RegionAsia	1.021096	1.299564
RegionAmericas	0.317016	1.186579
RegionEurope	0.645648	1.104534
Change_G12:RegionAsia	-0.16711	0.093339
Change_G12:RegionAmericas	-0.10445	0.091324
Change_G12:RegionEurope	-0.22882*	0.090761

$R^2 = .12$
Adj. R^2 = .065
$F(7, 114) = 2.18*$

M1. Goal 13, predictor = 2017 SDGI values, outcome = GFRA

	Coefficient	Std. error
(Intercept)	-0.33526	0.777863
G13	-0.00246	0.009503
RegionAsia	-0.92815	1.194307
RegionAmericas	0.848105	1.061382
RegionEurope	0.381669	1.02707
G13:RegionAsia	0.016415	0.014923
G13:RegionAmericas	-0.00795	0.013053
G13:RegionEurope	0.002832	0.012687

R^2 = .177
Adj. R^2 = .126
$F(7, 114)$ = 3.50**

M2. Goal 13, predictor = 2017-2020 change in SDGI values, outcome = GFRA

	Coefficient	Std. error
(Intercept)	-0.43811*	0.204288
Change_G13	-0.00626	0.011476
RegionAsia	0.358755	0.25473
RegionAmericas	0.192179	0.238404
RegionEurope	0.518113*	0.22939
Change_G13:RegionAsia	-0.00355	0.015197
Change_G13:RegionAmericas	-0.00962	0.017531
Change_G13:RegionEurope	0.006819	0.013104

R^2 = .176
Adj. R^2 = .125
$F(7, 114)$ = 3.47**

M3. Goal 13, predictor = 2017 SDGI values, outcome = GFW

	Coefficient	Std. error
(Intercept)	-4.3807	3.34019
G13	0.10164*	0.040808
RegionAsia	14.7853**	5.128425
RegionAmericas	3.311023	4.557638
RegionEurope	7.892417	5.47601
G13:RegionAsia	-0.19923**	0.064078
G13:RegionAmericas	-0.05647	0.056052
G13:RegionEurope	-0.11657	0.067593

$R^2 = .148$
Adj. R^2 = .095
$F(7, 114) = 2.78*$

M4. Goal 13, predictor = 2017-2020 change in SDGI values, outcome = GFW

	Coefficient	Std. error
(Intercept)	5.183815***	0.893644
Change_G13	-0.08468*	0.050203
RegionAsia	-3.15072**	1.114299
RegionAmericas	-2.82091	1.04288
RegionEurope	-3.01241	1.006495
Change_G13:RegionAsia	0.162495*	0.06648
Change_G13:RegionAmericas	0.122467	0.076687
Change_G13:RegionEurope	0.066679	0.057366

$R^2 = .165$
Adj. R^2 = .109
$F(7, 114) = 3.07*$

N1. Goal 16, predictor = 2017 SDGI values, outcome = GFRA

	Coefficient	Std. error
(Intercept)	-2.2855**	0.707134
G16	0.030618*	0.012256
RegionAsia	1.400694	1.088628
RegionAmericas	0.67826	0.8831
RegionEurope	2.396313**	0.864254
G16:RegionAsia	-0.02013	0.017219
G16:RegionAmericas	-0.00659	0.015616
G16:RegionEurope	-0.03111*	0.014043

R^2 = .243
Adj. R^2 = .197
$F(7, 114)$ = 5.24***

N2. Goal 16, predictor = 2017-2020 change in SDGI values, outcome = GFRA

	Coefficient	Std. error
(Intercept)	-0.53901***	0.116754
Change_G16	-0.001	0.016024
RegionAsia	0.402867*	0.170772
RegionAmericas	0.116991	0.203552
RegionEurope	0.617112**	0.201013
Change_G16:RegionAsia	-0.01614	0.02366
Change_G16:RegionAmericas	0.015388	0.02388
Change_G16:RegionEurope	0.000685	0.022887

R^2 = .168
Adj. R^2 = .117
$F(7, 114)$ = 3.28**

N3. Goal 16, predictor = 2017 SDGI values, outcome = GFW

	Coefficient	Std. error
(Intercept)	11.12139***	3.240066
G16	-0.12686*	0.056158
RegionAsia	-5.94466	4.988061
RegionAmericas	-7.67915	4.046336
RegionEurope	-10.2376*	3.966132
G16:RegionAsia	0.091557	0.078896
G16:RegionAmericas	0.109952	0.071553
G16:RegionEurope	0.146987*	0.064466

$R^2 = .108$
Adj. $R^2 = .053$
$F(7, 114) = 1.95$

N4. Goal 16, predictor = 2017-2020 change in SDGI values, outcome = GFW

	Coefficient	Std. error
(Intercept)	4.016013***	0.513687
Change_G16	0.039504	0.0705
RegionAsia	-0.966	0.751354
RegionAmericas	-0.79759	0.895577
RegionEurope	-1.92124*	0.893958
Change_G16:RegionAsia	-0.16062	0.104096
Change_G16:RegionAmericas	-0.13437	0.105066
Change_G16:RegionEurope	-0.01285	0.101754

$R^2 = .096$
Adj. $R^2 = .039$
$F(7, 114) = 1.70$

Table B.7. Summaries of explained variance for all PLSR and DA analyses presented in this paper.

Outcome	Model	Optimum PLSR Components	Variance explained in x (PLSR)	Variance explained in y (PLSR)	Variance explained by DA (R^2)
Net change in forest cover 2017-2020 (GFRA data)	2017 scores	1	66.03	30.59	0.4055
	2017-2020 change	1	32.86	27.7	0.3474
	2017 scores (grouped)	1	84.89	30.19	0.3195
	2017-2020 change (grouped)	2	81.26	22.8	0.2382
	Africa 2017 scores	1	68.01	23.78	0.2675
	Africa 2017-2020 change	1	59.69	18.31	0.264
	Asia 2017 scores	1	83.22	15.49	0.2738
	Asia 2017-2020 change	1	59.76	16.27	0.3458
	Americas 2017 scores	1	72.99	22.38	0.3501
	Americas 2017-2020 change	1	62.22	16.6	0.2813
	Europe 2017 scores	1	65.28	16.08	0.2927
	Europe 2017-2020 change	3	93.12	33.95	0.3422
Percentage tree cover loss 2017-2020 (GFW data)	2017 scores	2	74.12	29.07	0.388
	2017-2020 change	1	29.86	17.17	0.198
	2017 scores (grouped)	1	84.73	17.96	0.231
	2017-2020 change (grouped)	2	82.65	16.35	0.179
	Africa 2017 scores	1	66.82	21.16	0.323
	Africa 2017-2020 change	2	78.17	23.11	0.234
	Asia 2017 scores	1	81.88	14.99	0.327
	Asia 2017-2020 change	3	96.05	48.48	0.559
	Americas 2017 scores	2	81.9	34.59	0.371
	Americas 2017-2020 change	2	84.71	23.37	0.268
	Europe 2017 scores	2	84.64	39.43	0.398
	Europe 2017-2020 change	1	62.69	18.66	0.257

Appendix C: Supplement to Chapter 4

C.1. Supplementary methods

Table C.1. Driver categories used in this analysis, including the total number of countries reported as having forests affected by each driver, and explanations of SDG targets associated with each driver. Drivers are presented from highest to lowest numbers of countries in which they were recorded in this work. In this work, for all acknowledged drivers in a given country, all associated targets of relevance are reported upon. In cases where risk or opportunity targets are not triggered by an existing driver, but are assessed as likely to show imminent progress, we report these as 'possible emerging risks' (see Materials and methods, main report). Continues over multiple pages.

No.	Driver	Total countries	Explanation and associated SDG targets
1	Illegal logging	48	Defined here as the illegal logging of whole trees for non-fuel purposes, whether for personal use or for onward sale to either local or distant markets. Illegal logging is affected by SDG targets such as poverty reduction (targets **1.1** and **1.2**) and reduced income inequality (target **10.1**), which (if trees are felled to support livelihoods) can allow beneficiaries to seek out new sources of income. Improved levels of ownership and control over land (target **1.4**) may help landowners to prevent illegal felling on their land. Improvements to rural infrastructure (target **2.a**) including roads (target **9.1**) may encourage small-scale logging, as they can increase access to new areas of forest, and allow easier movement of timber. Increasing levels of education (targets **4.1**, **4.2** and **4.3**) and employment (target **8.5**) can reduce illegal logging as they help would-be-loggers to derive funds from alternative sources. Improving law enforcement (target **16.3**) can directly address illegal logging. Reducing corruption (target **16.5**) can prevent pay-offs to overlook illegal activities. Improving transparency/accountability of institutions (target **16.6**) can help ensure supply chains are not using illegally harvested wood. .

No.	Driver	Total countries	Explanation and associated SDG targets
2	Poor law/regulation enforcement	47	An underlying driver. Where enforcement of laws or regulations (e.g. locally agreed harvest quotas) is poor, or where justice systems are ineffective, illegal activities that affect forests can occur without appropriate disciplinary action, which may in turn encourage offenders to continue or repeat their actions, and also encourage other people to do the same. This is relevant to illegal logging and NTFP harvests, but also to other activities, including illegal mining, illegal land occupation, and illegal grazing, among others. This driver is directly linked to SDG target **16.3** (promote law and justice).
3	Small-scale agriculture	46	Defined here as agriculture at individual or homestead level for the purpose of subsistence and/or local sale, this driver is a common threat to forests due to conversion of land for agricultural use. Small-scale agriculture is affected by a number of areas of development, including poverty reduction (targets **1.1** and **1.2**), levels of ownership and control over land (target **1.4**), and reduced income inequality (target **10.1**), which may allow farmers to either expand agricultural areas (damaging) or begin new, non-agricultural practices (beneficial). Similarly, economic growth (target **8.1**) may increase this driver if growth is founded on the agricultural sector, but may reduce it if it is based around non-agricultural sectors, such as tourism (target **8.9**) or manufacturing (target **9.2**). Where efforts to increase food production (target **2.3**) are achieved through small-scale producers then this driver may become more severe. Investments in agricultural research/technologies or rural infrastructure (target **2.a**) including roads (target **9.1**) can be either beneficial or damaging. New technologies or methods can promote intensification of agriculture, which requires less land, but can also allow farmers to cultivate larger areas of land with reduced labour requirements. Infrastructure improvements are often damaging as they require land themselves, and can also facilitate greater access to previously inaccessible areas as well as to markets. Social factors affecting this driver include levels of decent employment (target **8.5**), especially in the non-agricultural sector (target **8.3**), which can directly draw people away from damaging agricultural practices. This can be facilitated by improved levels of education (targets **4.1**, **4.2** and **4.3**), which provides individuals with a greater range of (non-agricultural) employment options.
4	Weak or flawed governance/ institutional capacity	45	This underlying driver overlaps largely with others included here, and is intended as a 'catch-all' where specifics are not stated in the source materials. This includes cases where enforcement of laws and regulations is flawed, where planning and land administration frameworks are poorly applied, and other instances where some aspect of governance required to ensure forest conservation is lacking. This driver may be mitigated by increasing access to quality higher education (target **4.3**), and by ensuring that planning and decision-making processes are sustainable and inclusive of all (target **11.3**), including women

No.	Driver	Total countries	Explanation and associated SDG targets
			(target **5.5**). Ensuring sound rule of law (target **16.3**) and transparent, accountable institutions (target **16.6**) (especially the private sector) will help to prevent those with potential to benefit from poorly regulated schemes from furtively doing so.
5	Insecure, unclear or inappropriate land/property rights	44	An underlying driver. In the context of forests, matters of land/property rights are highly complex. Households or communities without secure rights often lack the authority prevent degrading activities on a parcel of land, which may include, inter alia, collection of fuelwood by neighbouring households/communities, or the development of land through a government or private sector enterprise. Conversely, however, the establishment of more secure rights to property or land can sometimes result in negative outcomes, for example where owner feels an increased sense of authority to exploit resources on his/her land, or where clearance of forest is expected as a means to demarcate land and demonstrate ownership (see target **1.4** in Table B.2). This driver is directly linked to SDG target 1.4 (ensure equal rights to ownership and control over land, property, inheritance and natural resources).
6	Settlements-associated infrastructure	41 (plus expected future driver for one)	Defined here as any hard infrastructure designed to provide or improve dwellings for human inhabitants. This driver is most notably linked with target **11.1** which calls for the development and upgrade of housing and associated services, and with target **2.a**, which aims to improve rural infrastructure to boost food production. Increased tourism (target **8.9**) and industry (target **9.2**) are also often accompanied by expansion or building of settlements. Well-established ownership and control over land (target **1.4**) and sustainable (and ideally participatory) approaches to settlement planning (target **11.3**) can, in some cases, prevent inappropriate deployment of energy infrastructure where potential forest damage may result. Where large housing development projects are delivered by, or in partnership with, large commercial businesses, they can be subject to less favourable agreements between partners that prioritise project delivery over sound environmental safeguards. Consequently, reducing corruption (target **16.5**) and ensuring institutional transparency and accountability (target **16.6**) can help to avoid this.

No.	Driver	Total countries	Explanation and associated SDG targets
7	Population growth	40 (plus expected future driver for one)	Although this is a commonly cited underlying driver, the links between population growth and damage to forests remain the subject of debate. Note that here population growth does not necessarily refer to the national level, but can also refer to growth of localised populations. We do, however, exclude growth attributable to migration, which is captured elsewhere. Population growth can lead to increased demand for land and natural resources, and can also result in higher levels of unemployment which can in turn lead people to engage in damaging activities (e.g. agriculture, illegal logging) to support their livelihoods. SDG targets relating to this driver include access to family planning (target **3.7**), which can directly moderate birth rates; female participation in leadership and decision-making (target **5.5**), which is indicative of a more empowered female population (and one that is better able to make independent decisions on bearing children); and targets relating to education (targets **4.1**, **4.2** and **4.3**), which have been show in many cases to correlate with reduced population growth rates.
8	Commercial agriculture	42	Defined here as agricultural production intended for sale to distant markets, large-scale agriculture is affected by similar SDG targets as small-scale agriculture (see driver 3 above), but less affected by matters such as poverty, equality, education, and alternative industries such as tourism and manufacturing. Because commercial agriculture is often conducted by large businesses, matters of corruption (target **16.5**) and institutional transparency (target **16.6**) are additional SDG targets with potential influence, which are less relevant to agriculture at a smaller scale.
9	Corruption	42	Corruption is an underlying driver, linked to numerous other direct drivers (see elsewhere in this table). In particular, the presence of corruption in a country can allow developments to occur that provide monetary or political benefits to those involved in the implementation (e.g. governments, corporations) at the expense of sound environmental safeguards. Such projects often involve the acquisition of land and subsequent use for large infrastructure or commercial projects. This driver is directly linked to SDG target **16.5** (reduce corruption).

No.	Driver	Total countries	Explanation and associated SDG targets
10	High incidence of poverty	41	Poverty is a commonly cited underlying driver, although the links with forests are complex. The main reason that poverty is thought to lead to forest damage include that those striving to escape from poverty commonly use any available means to do so, which can include expansion of small-scale agriculture and/or the harvest and sale of forest products (e.g. timber, NTFPs), whether legally or otherwise. Related to this, people in poverty typically have low resilience to shocks (i.e. financial, climatic etc.) and so may rely on the use of forest resources to supplement their diets or livelihoods when shocks emerge. Use of forest resources in this way becomes unsustainable when high densities of people are experiencing poverty at a given location. This driver is linked with SDG targets **1.1** and **1.2**, which call for reduced levels of poverty, and with target **10.1**, which calls for reduced income inequalities. As mentioned elsewhere in this table, poverty reduction can sometimes have adverse effects on forests. This can occur, for example, when poverty reduction schemes actively promote agriculture (or some other form of employment) in forested areas, or when those benefitting from newly available monetary resources choose to use these to engage in forest-damaging activities that were previously not possible.
11	Transport infrastructure	40	Defined here as any hard infrastructure designed to improve transport routes within or between countries. Impacts associated with roads are those most commonly cited, although other aspects of transport infrastructure can also have impacts if not managed carefully (e.g. marine ports can damage mangroves). This driver is most notably linked with target **9.1**, which calls, in part, for the expansion of road networks, and also with target **2.a**, which aims to improve rural infrastructure to boost food production. Transport infrastructure is often seen as a prerequisite for economic growth (target 8.1), including for sectors such as tourism (target **8.9**) and industry/manufacturing (target **9.2**). Well-established ownership and control over land (target **1.4**) and sustainable (and ideally participatory) approaches to settlement planning (target **11.3**) can, in some cases, prevent inappropriate deployment of transport infrastructure where potential forest damage may result, as well as restricting access to forests by those who might use the roads move felled trees. Because transport infrastructure developments are often flagship government projects delivered in partnership with large commercial businesses, they can be subject to less favourable agreements between partners that prioritise project delivery over sound environmental safeguards. Consequently, reducing corruption (target **16.5**) and ensuring institutional transparency and accountability (target **16.6**) can help to avoid this.

No.	Driver	Total countries	Explanation and associated SDG targets
12	Domestic fuel production	39	Defined here as the extraction of wood for the purpose of producing charcoal or wood fuel for domestic (i.e. home) use. End use may be by the collector (or their household) or by another party who may have purchased the fuel. Collection may be either legal or illegal. Domestic fuel production is most notably affected by SDG targets relating to clean fuels (target **7.1**) and on reducing deaths and illnesses from hazardous air pollution (target **3.9**), the latter being a common hazard arising from wood-based cooking fuels. Because the definition of 'renewable energy' used for target 7.2 includes wood fuel and charcoal, it is possible (although perhaps not especially likely) that efforts to increase the share of renewables in the energy mix could lead to increases in this driver. We acknowledge that increasing availability of other non-biofuel energy types (renewable or otherwise) could help to mitigate this driver. How we address this in our work is described under target 7.2 in Table C.2, below. This driver is also affected by matters such as ownership and control over land (target **1.4**), which can encourage landowners to either exploit or conserve their forest resources, and also help to prevent others from coming onto the land to extract wood.
13	Mining/fossil fuel extraction	38 (plus expected future driver for one)	Defined here as extraction of any non-living products, including minerals (e.g. gold, iron, sand etc.) or fossil fuels (oil, gas etc.), this driver is most notably affected by efforts to increase economic growth (target **8.1**) where such extractive industries are targeted. Clear and secure rights relating to land and resource ownership (target **1.4**) have the potential to prevent extractive companies from conducting their works on areas that are already under established ownership. Because forest impacts associated with extractive industries often arise from the development of settlements another other infrastructure designed to accommodate workers and their operations, a sustainable (and ideally participatory) approach to settlement planning (target **11.3**) can help to reduce these impacts. Because mineral and fossil fuel extraction is often conducted by large commercial businesses, reducing corruption (target **16.5**) and improving institutional transparency/accountability (target **16.6**) can prevent concessions being offered without effective environmental safeguards, which can be common in this sector. Note that the impacts associated with mining and fossil fuel extraction are typically not worsened by improvements in infrastructure such as roads, as companies often have the capacity to develop the infrastructure necessary for their operations. However, this infrastructure itself can actively facilitate other drivers, such as illegal logging.

No.	Driver	Total countries	Explanation and associated SDG targets
14	Poor planning frameworks/land administration	34	This underlying driver refers to cases where land development activities (e.g. demarcating agricultural lands or installing infrastructure) lead to unnecessary forest damage due low capacity of the relevant agencies to appropriately implement impact assessments and environmental safeguards when planning or authorising projects and schemes, or where the planning frameworks themselves are inherently flawed. This driver may be mitigated by increasing access to quality higher education (target **4.3**), and by ensuring that planning and decision-making processes are sustainable and inclusive of all (target **11.3**), including women (target **5.5**). Ensuring transparency and accountability of institutions (target **16.6**) (especially the private sector) will help to prevent those with potential to benefit from poorly regulated schemes from furtively doing so.
15	Low public awareness/willingness	33	Where large proportions of the public are either unaware of the importance of forest conservation or the damaging implications of their actions, or simply unwilling to change their behaviours to become more sustainable, this can act as an underlying driver that underpins one or more direct drivers. In order to remedy such a situation, efforts to ensure a more education population (targets **4.1**, **4.2** and **4.3**) are likely to beneficial, as this can lead to a greater awareness for the importance of functioning natural systems for long-term human well-being. Also, an unwillingness to reduce unsustainable activities is often associated with people experiencing poverty, and so reducing poverty (targets **1.1** and **1.2**) could go some way towards mitigating this driver. Lastly, unwillingness to comply with conservation-related laws and regulations may arise when people or groups feel excluded from the decision-making processes that determine these rules. As such, an inclusive approach to decision-making (captured in our work through target **5.5**) including in matters of settlement planning (target **11.3**) could help to mitigate this driver.

No.	Driver	Total countries	Explanation and associated SDG targets
16	Lack of alternative livelihoods	32	A lack of alternative livelihoods is an underlying driver describing cases where activities to support livelihoods are inadvertently causing loss or degradation of forests, and where alternative, less damaging activities are unavailable. This can apply to a number of direct drivers, including agriculture, illegal logging, artisanal mining, and so on, which typically operate at a smaller scale. This driver is linked with a number of SDG targets, including those associated with improved employment opportunities, such as matters of education (targets **4.1**, **4.2** and **4.3**), economic growth (target **8.1**), increased employment rates (target **8.5**), reduced employment in agriculture (target **8.3**), new opportunities arising from industries such as manufacturing (target **9.2**) and tourism (target **8.9**), and increased access to credit and markets (target **9.3**). This driver is also linked with poverty (targets **1.1** and **1.2**) and income inequality (target **10.1**), as attaining these targets can help break people's reliance on activities that are damaging (and which are typically undesirable forms of making a living).
17	Internal migration	31	This underlying driver relates the migration of people within a country, which can either be spontaneous or actively encouraged (e.g. through some government scheme). If migrant flows are improperly managed, such that migrants are freely able to settle and subsequently engage in activities, whether legal or illegal, that cause damage to forests (e.g. agriculture, logging, resource extraction etc.).The most notable SDG target linking to this driver is that relating to well-managed migration policies (target **10.7**), but others that can help address this driver include ensuring secure and clear ownership and control over land (target **1.4**), sustainable and participatory settlement planning (target **11.3**), and proper enforcement of the rule of law (target **16.3**).

No.	Driver	Total countries	Explanation and associated SDG targets
18	Commercial logging	30	Defined here as legal logging of whole trees for non-fuel purposes by commercial agents, including for onward sale to either local or distant markets. Commercial logging is affected by SDG targets such as ownership and control over land (target **1.4**), which can allow landowners to actively prevent companies from logging their land, or in some cases, to sell land to logging companies. Economic growth (target **8.1**), if founded on exploitation of forest resources, may result in an increase in commercial logging. Where economic growth is founded on tourism (target **8.9**) and/or manufacturing (target **9.2**), commercial logging may also increase in order to provide the timber required to support these sectors. Similarly, large volumes of timber may be required for housing developments (**11.1**). Although more closely tied to illegal logging (see next section) addressing matters of corruption (target **16.5**) and transparency/accountability of both the public and private sectors (target **16.6**) can help reduce the impacts of this driver, as commercial logging concessions are often associated with 'off-the-record' deals between logging companies, governments and/or landowners.
19	Overharvesting of non-fuel, non-timber forest products (NTFPs)	29	Defined here as the extraction of any non-timber, non-fuel forest product (including animals) at unsustainable levels. Overharvesting of non-fuel NTFPs is affected by SDG targets such as poverty reduction (targets **1.1** and **1.2**) and reduced income inequality (targets **10.1**), which (if products are harvested to support livelihoods) can either facilitate a higher intensity of extraction or encourage beneficiaries to seek out new sources of income. Similarly, economic growth (target **8.1**) resulting in new sources of employment (target **8.5**) can provide alternative incomes that may reduce the need to extract NTFPs. Where growth is based on increased tourism (target **8.9**) this can potentially increase demand for NTFPs for sale to tourists. Levels of ownership and control over land (target **1.4**) can affect NTFP extraction, as land owners may choose to either exploit or conserve forest resources, and can also help prevent others from accessing land to extract products.

No.	Driver	Total countries	Explanation and associated SDG targets
20	Small-scale logging	28	Defined here as legal logging of whole trees for non-fuel purposes by non-commercial agents, typically for local use (e.g. for house construction) either directly by the logger or by another local recipient. Small-scale logging is affected by SDG targets such as poverty reduction (targets **1.1** and **1.2**) and reduced income inequality (targets **10.1**), which (if trees are felled to support livelihoods) can either facilitate a higher intensity of logging or encourage beneficiaries to seek out new sources of income. Levels of ownership and control over land (target **1.4**) similarly affect small-scale logging, as land owners may choose to either exploit or conserve forest resources. Improvements to rural infrastructure (target **2.a**) including roads (target **9.1**) may encourage small-scale logging, as they can increase access to new areas of forest, as well as to a wider range of options through which to market timber. Increases in the tourism (target **8.9**) and manufacturing (target **9.2**) sectors may encourage small-scale logging as timber is often required to support these sectors, and presents an opportunity for locals with the option of logging to earn an income through the sale of wood. However, tourism and housing developments (**11.1**) may also encourage logging to provided timber for construction. Lastly, as with small-scale agriculture, increasing levels of education (targets **4.1**, **4.2** and **4.3**) and employment (target **8.5**) can reduce small-scale logging as they allow would-be-loggers to derive funds from alternative sources.
21	Other illegal activities	26	This category is intended to capture miscellaneous illegal activities that are resulting in loss or degradation of forests, whether directly or indirectly. Illegal activities recorded in our review included land grabbing, land occupation, agriculture/grazing, hunting, drug production, mining, killing of poor/indigenous people, and NTFP collection (e.g. fuel wood, palm hearts). In most cases these illegal drivers can be directly linked with the SDG targets relevant to their legal counterparts (see elsewhere in this table), but should also include (where not included already) target **16.3** on improved law enforcement.

No.	Driver	Total countries	Explanation and associated SDG targets
22	Energy infrastructure	24 (plus expected future driver for two)	Defined here as any hard infrastructure designed to supply energy to homes or businesses. Impacts associated with hydropower and distribution networks are those most commonly cited, although other aspects of energy infrastructure (e.g. solar and wind plants) can also have impacts if not managed carefully. This driver is most notably linked with energy targets on access to electricity (target **7.1**), increasing renewable energies (target **7.2**) and expanding energy infrastructure (target **7.b**). Efforts to improvements to rural infrastructure (target **2.a**) also typically require deployment of energy infrastructure. Where economic growth (target **8.1**) is founded upon tourism (target **8.9**) or industrialisation/manufacturing (target **9.2**) deployment and/or expansion of energy infrastructure is typically required. Well-established ownership and control over land (target **1.4**) and sustainable (and ideally participatory) approaches to settlement planning (target **11.3**) can, in some cases, prevent inappropriate deployment of energy infrastructure where potential forest damage may result. Because matters of energy are often flagship government projects delivered in partnership with large commercial businesses, they can be subject to less favourable agreements between partners that prioritise project delivery over sound environmental safeguards. Consequently, reducing corruption (target **16.5**) and ensuring institutional transparency and accountability (target **16.6**) can help to avoid this.
23	Demand for timber/NTFPS (domestic)	24	Defined as an unsustainable demand for forest products for use at the household level, within the source country. This underlying driver can become more severe as households become free of poverty (targets **1.1** and **1.2**) or otherwise increase their incomes (e.g. through increased GDP per capita, target **8.1**, or reduced income inequalities, target **10.1**). Ensuring clear and secure ownership/control of land and resources (target **1.4**) may help to prevent over-exploitation to meet demands, but landowners may also choose to take advantage of high demands and exploit their resources for profit.
24	Demand for timber/NTFPS (industrial, domestic)	21 (plus expected future driver for one)	Defined as an unsustainable demand for forest products (including fuel) to be used for industrial or commercial purposes, within the source country. This underlying driver can become more severe as governments pursue economic growth (target **8.1**), especially when this involves expanding the industrial and manufacturing sectors (target **9.2**), and (perhaps to a lesser extent) tourism (target **8.9**). The building of houses (target **11.1**) can also potentially make this driver more severe. As with demand for household use, target **1.4** (improved land/property rights) could have mixed effects, depending on whether landowners choose to conserve or exploit trees.

No.	Driver	Total countries	Explanation and associated SDG targets
25	Land grabbing/ speculation	19	Land grabbing is the large-scale acquisition of land, whether by companies, governments or individuals. Typically, land grabbing is speculative, with the land ultimately being used for purposes such as agriculture, natural resource extraction or development of settlements. Often, where land grabbing occurs, trees are cleared to demarcate newly claimed land. Land grabbing can be particularly problematic where land tenure is unclear and/or poorly enforced (target **1.4**), where improved transport infrastructure (target **9.1**) makes areas of land more commercially appealing, where settlement planning is poorly managed (target **11.3**), and/or where governance is weak, including poor law enforcement (target **16.3**), the presence of corruption (target **16.5**) or poor accountability of institutions (target **16.6**).
26	Lack of improved agricultural/forestry techniques or technologies	19	Relationships between agricultural techniques/technologies are complex, and some evidence exists to show that access to better technologies can actually damage forests (e.g. mechanized farming can allow farmers to cultivate more land with less labour). Nevertheless, other evidence has shown that farmers using unimproved techniques typically achieve lower yields, and hence need to cultivate larger areas of land in order to meet their basic requirements. In addition, where appropriate technologies are absent, cultivation can lead to loss of soil fertility, necessitating farmers to move to new areas to continue production. Such 'shifting cultivation' is notably problematic where population densities are high. This driver is linked to SDG target **2.a**, which calls for increased investments into agricultural research and technologies.
27	Low levels of education	14	A poorly educated society is often cited as an underlying driver, although the mechanisms behind this are often not well understood. It is suggested that a better education can result in a higher proportion of people working in the service sector (as opposed to damaging forms of work); better knowledge of less damaging farming techniques and technologies; and an increased understanding and appreciation of environmental matters. This driver is directly linked with targets from SDG 4, which all pertain to improved education, and especially targets **4.1**, **4.2** and **4.3**, which call for equal access to quality education at different levels. Reducing poverty (targets **1.1** and **1.2**) can also help to facilitate better educational outcomes.

No.	Driver	Total countries	Explanation and associated SDG targets
28	Industrial infrastructure	14 (plus expected future driver for one)	Defined here as any hard infrastructure associated with industry and commercial operations. There are large overlaps with other infrastructure-related drivers included here, as new industries often require energy, access roads and areas for workers to live, however we reserve those drivers for their respective categories and only include cases here where infrastructure is directly associated with on-site operations or where the specific types of industrial infrastructure are unspecified (in such cases the factors listed above may also be included). This driver is linked with industrialisation and manufacturing (target **9.2**), which is a common strategy to boost economic growth (target **8.1**), and, where the industry is agriculture-related, with improvements to rural infrastructure (target **2.a**). As with installation of other types of infrastructure, well-established ownership and control over land (target **1.4**), reducing corruption (target **16.5**) and ensuring institutional transparency and accountability (target **16.6**) can help to mitigate this driver.
29	Tourism	12	Tourism is common means through which government seek to achieve economic growth (target **8.1**), but can act as an underlying driver when it leads to one or more of the following: increased disturbance or forests systems due to increased footfall, increased extraction of forest resources to meet the needs of tourists (e.g. wood to produce souvenirs) and/or expansion of infrastructure into forested areas to support the expanding industry. Conversely, it is also the case that well managed tourism can help to mitigate forest loss/degradation where it provides local employment that replaces more damaging activities and/or highlights to local people that forests are an asset that can attract tourists (and hence encourages their conservation). By pursuing target **8.9**, which calls for an increase in tourism, opportunities to conserve forests may arise, but those involved must be cautious to ensure that tourism does not lead to an increase in forest damage. Sustainable tourism must be well managed through clear land tenure arrangements (target **1.4**), sustainable (ideally participatory) settlement planning (target **11.3**), effective law enforcement (target **16.3**), the absence of corruption (target **16.5**) and accountability of those working in and leading the sector (target **16.6**).
30	Unequal land allocation (rich (inc. state) vs poor)	11	An underlying driver with complex (and somewhat poorly understood) mechanisms. An unequal allocation of land between richer and poorer groups can encourage migration of the landless to frontier zones to seek out agricultural opportunities in forested areas. In such cases, well-managed migration policies (target **10.7**) are crucial to avoid uncontrolled damage to forests. Other theories suggest that unequal land allocations result in ineffective institutions, which are in turn unlikely to enforce regulations around planning and resource usage. This suggests that planning processes that are inclusive (target **11.3**) as well as efforts to reduce corruption (target **16.5**) and increase institutional accountability (target **16.6**) could help to mitigate the impacts. Efforts to reduce poverty (targets **1.1** and **1.2**), increase access to land and resources (target **1.4**), and reduce income inequalities (target **10.1**), should go some way towards addressing this driver. However, as noted in this table's sections on poverty and on land/property rights, in some cases increasing access of the poor to land can encourage

No.	Driver	Total countries	Explanation and associated SDG targets
			exploitation of resources.
31	In-migration (international)	5	In-migration from other countries can act as an underlying driver if migrant flows are improperly managed, such that migrants are freely able to settle and subsequently engage in activities, whether legal or illegal, that cause damage to forests (e.g. agriculture, logging, resource extraction etc.). The most notable SDG target linking to this driver is that relating to well-managed migration policies (target **10.7**), but others that can help address this driver include ensuring secure and clear ownership and control over land (target **1.4**), sustainable and participatory settlement planning (target **11.3**), and proper enforcement of the rule of law (target **16.3**).
32	Civil conflict / violence / instability (recovering)	5	As noted below, the cessation of war can also act an underlying driver when new liberties are granted to citizens, allowing them to more safely access formerly inaccessible areas and engage in activities that damage forests. The cessation of war can also allow restorative (e.g. improving infrastructure) and commercial (e.g. tourism, international trade etc.) activities to resume/increase, which often entails an increase in the demand for forest resources. Cessation of war can increase the risks and opportunities associated with development of infrastructure (targets **2.a** and **9.1**) and housing (target **11.1**), as well as from economic growth (target **8.1**), industry and manufacturing (target **9.2**) and tourism (target **8.9**). Associated risks can be mitigated by ensuring clear tenure arrangements (i.e. on land that has become newly accessible) (target **1.4**), promoting the rule of law (target **16.3**), facilitating responsible migration (**10.7**), and ensuring sustainable and participatory settlement planning (target **11.3**).

No.	Driver	Total countries	Explanation and associated SDG targets
33	Civil conflict / violence / instability (ongoing)	4	Ongoing violent conflict can act as an underlying driver when it results in the erosion of legal and regulatory mechanisms that prevent over-exploitation, and also when other certain livelihood opportunities become less available to citizens as a result. In some cases, war can lead to migration of people into forests (whether militant groups or citizens seeking safety), which leads to increased use of forest resources. In some cases the sale of timber has been used as a means to raise funds to support militant groups. This driver can often be mitigated by promoting peace and stability (target **16.1**), but note that the end of conflicts can often lead to increases in forest loss and degradation (see above).

Table C.2. SDG targets included in this analysis, including links with drivers of forest loss or degradation (highlighted bold for cross-referencing with Table C.1 above), indicator data used to perform analyses, any notes or caveats associated with indicator data, and values used to assign categories of current status. Continues over multiple pages.

SDG target	Links with drivers	Indicator data used	Notes/Caveats	Standard deviation (and sample size) used to set threshold
1.1 By 2030, eradicate extreme poverty for all people everywhere, currently measured as people living on less than $1.25 a day and 1.2 By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions	Opportunity target. In some cases, **high poverty rates** are a cited underlying driver, which this target can help to address. People in poverty often have **minimal available livelihood options**, which can lead them to turn to forest-damaging activities, including **small-scale or illegal logging**, **unsustainable agriculture** or **harvesting of other forest products** (especially if there is a **high demand for forests products**). We note, however, that reducing poverty can sometimes encourage these activities even further. Poverty reduction can also help to address issues of **unequal land allocation**, **low levels of education**, and **low awareness/ willingness to act more sustainably**, which are all underlying drivers.	For 1.1: World bank indicator SI.POV.DDAY (Poverty headcount ratio at $1.90 a day (2011 PPP) (% of population)) For 1.2: World bank indicator SI.POV.NAHC (Poverty headcount ratio at national poverty lines (% of population)). Source: World Bank (2021) World Development Indicators. https://databank.worldbank.org/source/world-development-indicators	Due to different availability of data for targets 1.1 and 1.2 we employed both datasets (using different thresholds for each - see next column), using target 1.1 data as preference wherever both types were available for a given country.	For 1.1: 15.86 (n = 107) For 1.2: 16.45 (n = 76)
1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have	Opportunity target. Note that for this target we are specifically interested in aspects relating to "ownership and control over land, property and natural resources". Links between land/property	Index of Physical Property Rights component of the from the International Property Rights Index, which ranges from 0 (very poor) to 10		1.18 (n = 129)

SDG target	Links with drivers	Indicator data used	Notes/Caveats	Standard deviation (and sample size) used to set threshold
equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance	rights and forests are highly complex. **Insecure, unclear or inappropriate land/property rights** and **unequal land allocation** are both often cited as drivers, which this target can help to address. Improving land/property rights can help to address drivers such as **infrastructure deployment,** including for **energy**, **transport, settlements** or **industry, and extractive industries** (e.g. **mining, commercial logging**), as landowners have better rights to oppose these activities. This target can also help to address threats to forests arising from **illegal logging**, **land grabbing/speculation**, and the **movement of migrants**. This can be highly relevant if countries are **recovering from civil conflict**, which often leads people to new areas in search of land and new livelihood options. Conversely, however, improve land/property rights may encourage landowners to engage in damaging activities, including **domestic fuel production**, expansion of **small-scale agriculture**, **small-scale logging**, or **extraction of forest products** (especially if there is a **high demand for timber and/or NTFPs**). In some cases, improved rights may encourage the sale of land for conversion to **commercial agriculture**. Improved rights can also boost **tourism**, which can have mixed impacts on	(good). Source: IPRI (2020) The International Property Rights Index. https://www.internationalpropertyrightsindex.org/		

SDG target	Links with drivers	Indicator data used	Notes/Caveats	Standard deviation (and sample size) used to set threshold
	forests.			
2.3 By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment	Risk target. Agricultural production is commonly linked with forest loss, and so efforts to further increase production, whether through **small-scale or commercial agriculture**, has the potential to negatively affect forests. This is especially the case where increased production comes by way of agricultural expansion. Intensifying agriculture is often cited as a means to increase production with minimal environmental impacts, but there is evidence to suggest that this can have damaging impacts too, for example if productivity increases lead to rises in agricultural land rents,, thereby incentivising agricultural expansion.	We use FAO data on agricultural production. We sum all production data on tonnes of cereals, fruit, meat, pulses, roots/tubers, and vegetables (all in kg per year) and divide by population size and by 365 to calculate total kg of food produced, per person per day. We then calculated the difference between the observed values and a threshold of US$ 4kg per person per day, and used these values to assign categories of current status (see column on caveats). Source: FAO (2021) FAOSTAT. http://www.fao.org/faostat/en/#home	As this target is unbounded (i.e. there is no established endpoint to indicate success) we set our own threshold of 4kg per person per day. This threshold does not take into account factors, such as ratios of the various food types (and the nutritional values of each) or the final destination of food produced (e.g. export or in-country consumption).	1.24 (n = 136)
2.a Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology	Opportunity target. Investments associated with this target may have damaging or beneficial impacts on forests depending on the specifics of how they are used. The general purposed of this target is to increase agricultural outputs, whether from **small- or large-scale farms**, and so the same applies as for target 2.3 (above).	We use combined data on funding provided annually by UN IFAD, averaged for the years 2012 to 2017 (years for which most data were available). We use this data to calculate US$ invested per capita per km^2.	As this target is unbound (i.e. there is no established endpoint to indicate success) we set our own threshold of US$ 100,000 per person per km^2. This threshold does not take	40,547.78 (n = 65)

SDG target	Links with drivers	Indicator data used	Notes/Caveats	Standard deviation (and sample size) used to set threshold
development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries	Investments in infrastructure, which could include for **energy**, **transport**, **settlements** and/or **industry** (e.g. crop processing) can have directly damaging impacts. Infrastructure improvements, especially roads, can facilitated **small-scale and illegal logging**, and the movement of wood becomes easier. This can be particularly relevant in countries/areas that **are recovering from conflict**. Where a **lack of improved techniques or technologies** is a known driver, then this target could help to address this (e.g. by improving crop yields), but we also note that farmers may use technological improvements to expand into new areas.	We then calculated the difference between the observed values and a threshold of US$ 100,000 per person per km^2, and used these values to assign categories of current status (see column on caveats). To assess trends, percentage differences in the means of 2012 to 2014 and 2015 to 2017 were calculated and absolute differences of less than 5% were considered stable. Source: World Bank (2021) World Development Indicators. https://databank.worldbank.org/source/world-development-indicators	into account the relative contexts or needs of the countries under assessment.	
3.7 By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and	Enabling target. Better access to family planning services and information/ services on reproductive health is a recognised means by which to address **unsustainable population growth**, which is often cited as an underlying driver.	Adolescent fertility rate (births per 1,000 women ages 15-19) Source: World Bank (2021) World Development Indicators. https://databank.worldbank.org/source/world-development-indicators		38.19 (n = 162)

SDG target	Links with drivers	Indicator data used	Notes/Caveats	Standard deviation (and sample size) used to set threshold
programmes				
4.1 By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes	Enabling target. Improved education is generally linked with positive outcomes for forests, although the mechanisms are often not well understood. In some cases, **low levels of education** are cited as an underlying driver, often because they result in **limited livelihood options**, which can lead people to engage in damaging activities, such as **small-scale or illegal logging**, or **unsustainable agriculture**. Improved education (especially of females) has been linked to reduced **population growth**, and can also help to raise understanding and **awareness of environmental issues**. Lastly, over a longer term, a better educated population is thought to help facilitate improved **planning frameworks and land administration**, and address **weaknesses in governance and institutional capacity**.	Percentage completion rate of upper secondary school. Source: World Bank (2021) World Development Indicators. https://databank.worldbank.org/source/world-development-indicators		26.75 (n = 52)
5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and	Enabling target. Full female participation in decision-making is indicative of wider governance systems that are inclusive. More inclusive governance systems are likely to have better capacity for **sustainable planning and sound decision-making around land use**. Such systems	Proportion of seats held by women in national parliaments (% of total number of seats). Source: World Bank (2021) World Development Indicators. https://databank.worldbank.org/sourc		12.22 (n = 192)

SDG target	Links with drivers	Indicator data used	Notes/Caveats	Standard deviation (and sample size) used to set threshold
public life	are also likely to be more engaging for the public (as they feel a greater sense of ownership and responsibility of decisions made), which can go some way toward addressing issues of **low public willingness** to conserve forests or otherwise act sustainably. Lastly, situations where women are more involved in decision-making are likely to be indicative of a more empowered female population, which can help to address issues surrounding **unsustainable population growth.**	e/world-development-indicators		
7.1 By 2030, ensure universal access to affordable, reliable and modern energy services	Risk target (but see row below). Here we focus only on increasing access to electricity, which can have damaging impacts on forests through the deployment of **energy infrastructure**.	Proportion of population with access to electricity (%). Source: World Bank (2021) World Development Indicators. https://databank.worldbank.org/source/world-development-indicators		25.13 (n = 207)
7.1 By 2030, ensure universal access to affordable, reliable and modern energy services	Enabling target (but see row above). Here we focus on the 'clean fuels' component of target 7.1. Specifically, we are interested in efforts to reduce the **domestic use of charcoal and/or wood fuel**, which is a commonly cited driver of forest degradation. Note that this target also has overlaps with target 3.9.	Proportion of population with primary reliance on clean fuels and technology (%). Source: World Bank (2021) World Development Indicators. https://databank.worldbank.org/source/world-development-indicators	Source data reports values above 95% as '>95' and below 5% as '<5'. When calculating threshold we replace these with 97.5 and 2.5, respectively	37.13 (n = 189)

SDG target	Links with drivers	Indicator data used	Notes/Caveats	Standard deviation (and sample size) used to set threshold
7.2 By 2030, increase substantially the share of renewable energy in the global energy mix	Risk target. Deployment of most types of renewable energy (with the exception of biogas) requires **hard infrastructure** (e.g. generation plants, service roads, transmission lines), which can be damaging for nearby forests. This is particularly well documented for hydropower, but applies to all other types to varying degrees. Note that this target applies to energy production for both domestic and non-domestic (e.g. industrial) uses.	Renewable energy share in the total final energy consumption (%). Source: World Bank (2021) World Development Indicators. https://databank.worldbank.org/source/world-development-indicators	Definitions of 'renewable energy' used for the official indicator for this target include wood fuel and charcoal. We acknowledge that progress in this target could potentially either (a) increase use of wood fuel/ charcoal (damaging), or (b) reduce use of these fuels as people transition to other energy types (enabling). As such, this target may be regarded as an 'opportunity' target, but we nevertheless consider this as a 'risk' target, and focus on outcome a above, as outcome b is covered under target 7.1 above.	27.34 (n = 213)
7.b By 2030, expand infrastructure and upgrade technology for supplying modern and	Risk target. As noted above, **energy infrastructure** of most kinds can have potential impacts on forests. This target relates to both renewable and non-renewable energy types, and	Installed renewable electricity-generating capacity (watts per capita). We calculated the difference between the observed values and a threshold of	As per the official indicator for this target, the data used to calculate status and trend refer only to	161.16 (n = 171)

SDG target	Links with drivers	Indicator data used	Notes/Caveats	Standard deviation (and sample size) used to set threshold
sustainable energy services for all in developing countries, in particular least developed countries, small island developing States and landlocked developing countries, in accordance with their respective programmes of support	to both domestic and non-domestic uses.	500 watts per capita (see notes column). These values were then used to assign categories of current status. Source: World Bank (2021) World Development Indicators. https://databank.worldbank.org/source/world-development-indicators	renewable energies, however our assessment of priority includes all energy types. As this target is unbound (i.e. there is no established endpoint to indicate success) we set our own threshold of 500 watts per capita, which is comparable to current values for countries such as Australia, Germany and the UK. Note that the source data only contains information for developing countries, which is likely to affect the thresholds used in this work.	
8.1 Sustain per capita economic growth in accordance with national circumstances and, in	Opportunity target. Despite receiving much attention, the links between economic growth and forests remain unclear and somewhat contested (mainly due to the effects of other	Annual growth rate of real GDP per capita (%).	This target aims to achieve 7% annual growth for least developed countries. However, as our	2.82 (n = 207)

SDG target	Links with drivers	Indicator data used	Notes/Caveats	Standard deviation (and sample size) used to set threshold
particular, at least 7 per cent gross domestic product growth per annum in the least developed countries.	mediating factors). The means by which governments seek to achieve economic growth largely determines its impacts. If expected growth is based on **extraction of timber and/or other forest products**, **mining**, or **commercial agriculture**, then negative impacts could result. Growth based on manufacturing or **tourism** could also be damaging if poorly planned or regulated, but may also help provide **alternative livelihoods** for people that would otherwise engage in forest-damaging activities, such as **unsustainable agriculture** or **extraction of of forest products** to meet their income needs. **Expansion of infrastructure**, including for **energy**, **transport** and **industry**, typically accompanies efforts to grow economies, and can be damaging. Growing economies may also result in **increased demands for forest products**, both to fuel industry and among a more affluent population.	Source: UN SDG Indicators. We calculated the difference between the observed values and a threshold of 5% (see notes column). These values were then used to assign categories of current status. Because this indicator can fluctuate significantly year to year, comparisons of the current value with that from a single earlier year can give a misleading impression of the recent trend. To overcome this, we compare current values to the means of the previous 10 years and consider absolute differences of less than 5% as stable.	assessment considers additional countries that are not necessarily 'least developed', we use a more conservative threshold of 5% to assess country statuses.	
8.3 Promote development-oriented policies that support productive activities, decent job creation, entrepreneurship, creativity and innovation,	Enabling target. Although not explicitly stated in the target itself, the official indicator for this target (and the one used in this work) implies a reduction in the proportion of the population working in agriculture. Such reductions, likely achieved through the provision of **alternative livelihood**s, would inevitably help reduce in the	Employment in agriculture (% of total employment) (modelled ILO estimate) We calculated the difference between the observed values and a threshold of 20% employment in agriculture, and used these values to assign categories of current status (see column on	As this target is unbound (i.e. there is no established endpoint to indicate success) we set our own threshold of a maximum of 20% employment in agriculture to indicate	16.51 (n = 184)

SDG target	Links with drivers	Indicator data used	Notes/Caveats	Standard deviation (and sample size) used to set threshold
and encourage the formalization and growth of micro-, small- and medium-sized enterprises, including through access to financial services	damaging forest impacts associated with both **small- and large-scale agriculture**.	caveats). Source: World Bank (2021) World Development Indicators. https://databank.worldbank.org/source/world-development-indicators	success. This threshold does not take into account the relative contexts or individual targets of the countries under assessment, which may vary.	
8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value	Enabling target. There is good evidence to suggest that wage increases or increases in employment (especially in the non- agricultural sector) leads to a reduction in **damaging agricultural practices**. Increasing levels of employment can, through provision of **alternative livelihoods**, also help reduce damage associated with **small-scale extraction of timber or NTFPs**, both legal and **illegal**, if these where previously used to support/supplement people's livelihoods.	Unemployment rate, age 25+ (%) Source: World Bank (2021) World Development Indicators. https://databank.worldbank.org/source/world-development-indicators		4.41 (n = 125)
8.9 By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products	Opportunity target. **Tourism** itself is sometimes cited as driver, as it typically necessitates **expansion of infrastructure**, including for **energy**, **transport** and **settlements**. Tourism can provide **alternative livelihoods**, which may reduce damaging activities such as **small-scale agriculture** and **logging**, but may also increase the **demand for (and extraction of) timber and**	World Bank indicator ST.INT.RCPT.XP.ZS (international tourism, receipts (% of total exports)) We calculated the difference between the observed values and a threshold of 20% employment in agriculture, and used these values to assign categories	As this target is unbound (i.e. there is no established endpoint to indicate success) we set our own threshold of a maximum of 20% total income from exports attributable to tourism to indicate	7.23 (n = 185)

SDG target	Links with drivers	Indicator data used	Notes/Caveats	Standard deviation (and sample size) used to set threshold
	other forest products for construction purposes or to sell to tourists.	of current status (see column on caveats). Source: World Bank (2021) World Development Indicators. https://databank.worldbank.org/source/world-development-indicators	success. This threshold does not take into account the relative contexts or individual targets of the countries under assessment, which may vary.	
9.1 Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all	<u>Risk target</u>. Although not stated in the target itself, this target has a strong focus on transport infrastructure (both indicators relate to transport), and it is on this topic that we focus our assessment. There are numerous documented cases of transport infrastructure (mostly, but not exclusively roads) impacting forests. Deployment of **transport infrastructure** can necessitate clearance of forest, and can also allow access to formerly inaccessible areas, which can promote **land-grabbing/speculation**, **small-scaled (often illegal) logging**, and both **small- and large-scale agriculture**.	Logistics performance index: Quality of trade and transport-related infrastructure This index ranges from 1 (low) to 5 (high). However, because no countries (in 2018) had scores higher than 4.37, we use a more modest target of 4 to indicate 'success'. We subtract observed values from 4 and use resulting values to calculate the thresholds used in this assessment. Source: World Bank (2021) World Development Indicators. https://databank.worldbank.org/source/world-development-indicators		0.65 (n = 166)
9.2 Promote inclusive and sustainable industrialization and, by	<u>Opportunity target</u>. Increases in industrialisation/ manufacturing can be damaging due to **associated infrastructure**, including for **energy**,	Manufacturing, value added (% of GDP)	As this target is unbound (i.e. there is no established endpoint to indicate	7.19 (n = 177)

SDG target	Links with drivers	Indicator data used	Notes/Caveats	Standard deviation (and sample size) used to set threshold
2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries	**transport** and **settlements**. Increasing industry can provide **alternative livelihoods**, which may reduce damaging activities such as **small-scale agriculture** and **logging**, but may also increase the **demand for (and extraction of) timber and other forest products** if these are required as part of the industry.	We calculated the difference between the observed values and a threshold of 20, and used these values to assign categories of current status (see column on caveats). Source: World Bank (2021) World Development Indicators. https://databank.worldbank.org/source/world-development-indicators	success) we set our own threshold of a maximum of 20% to indicate success. This threshold does not take into account the relative contexts or individual targets of the countries under assessment, which may vary.	
10.1 By 2030, progressively achieve and sustain income growth of the bottom 40 per cent of the population at a rate higher than the national average	Opportunity target. Mechanisms through which improving income equality can affect forests are largely the same as for targets 1.1. and 1.2 (reduced poverty), shown at the top of this table.	Proportion of people living below 50 percent of median income (%). Source: World Bank (2021) World Development Indicators. https://databank.worldbank.org/source/world-development-indicators	The indicator used in this work is from target 10.2 due to poor data availability for indicator 10.1.1. However, as the two targets are closely related, we expect these indicators to be representative of each other.	5.35 (n = 103)
10.7 Facilitate orderly, safe, regular and responsible migration and mobility of people, including through the implementation of	Enabling target. Both **internal and international migration**, whether planned or spontaneous, is often implicated in forest loss and degradation, typically as migrants clear forests to develop settlements, engage in agricultural activities, or extract forest products to support livelihoods	Countries with migration policies to facilitate orderly, safe, regular and responsible migration and mobility of people. This indicator is comprised of six	In this work, when reviewing recent trends and national development priorities for this target, we consider matters of immigration and internal	Not applicable.

SDG target	Links with drivers	Indicator data used	Notes/Caveats	Standard deviation (and sample size) used to set threshold
planned and well-managed migration policies	and/or basic needs. This suggests that better management of migration could help reduce these impacts. Well-managed migration can be particularly important where an **unequal allocation of land** between richer and poorer groups encourages migration of the landless to frontier zones, and where **recovery from civil conflict** permits increased movement of people around the country.	'domains' (data elements used to derive an overall assessment). We focus on a single one (domain 2, 'whole of government/ evidence-based policies'), which we feel is best linked with a government's ability to tackle migration-related environmental impacts. This domain (as with the overall indicator) uses the following classification system: 1 = Requires further progress; 2 = Partially meets; 3 = Meets; 4 = Fully meets. In this work, values of 1 or 2 are considered 'poor' status, 3 'medium' and 4 'good'. Historic data are not available for this indicator, meaning that assessments of trend were not possible. As such, we assume the default of 'stable', unless otherwise suggested in the VNR or national planning documents. Source: World Bank (2021) World Development Indicators. https://databank.worldbank.org/source/world-development-indicators	migration, but not of emigration from a given country. As noted earlier, due to an absence of data, our assessments of recent trend in this indicator are based solely on reports given in the VNRs and planning documents, meaning that this component of our work should be considered as having lower overall confidence compared with most other targets.	

SDG target	Links with drivers	Indicator data used	Notes/Caveats	Standard deviation (and sample size) used to set threshold
11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums	<u>Risk target</u>. **Development of housing and settlements** can itself be a direct driver, and can also increase **demand for timber**, leading to increased **small- and large-scale logging**. Development of new settlements may be a notable cause for concern during **recovery from civil conflicts**, as demands for housing (and construction materials) could be especially high.	Proportion of urban population living in slums (%) Source: World Bank (2021) World Development Indicators. https://databank.worldbank.org/source/world-development-indicators	The indicator used in this assessment (which is the official indicator associated with this target) pertains to urban populations and housing, and so is likely to be less relevant to forest impacts than a similar indicator relating to rural populations. However, no counterpart for urban populations is available.	24.50 (n = 124)
11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries	<u>Enabling target</u>. When planning for the development of new settlements, including those associated with large **extractive industries**, a well-considered sustainability component is essential to minimize damage to surrounding natural systems. This is especially the case in situations where **settlement-related infrastructure** is already an acknowledged driver, where **planning/land administration frameworks** are poor, or where **governance is weak.** Sustainable settlement planning can help minimise risks from other types of **infrastructure (e.g. transport or energy)**, as well as from	Countries that have national urban policies or regional development plans that respond to population dynamics; ensure balanced territorial development; and increase local fiscal space (1 = YES; 0 = NO). Because this is a binary variable, values of 0 are assessed as 'poor' and values of 1 as 'good'. Historic data are not available for this indicator, and so assessments of trend were not possible, and we hence assume the default of 'stable', unless otherwise	The indicator used in this work is from target 11.a due to an unavailability of data for indicators relating to target 11.3. However, as the two targets are closely related, we expect these indicators to be representative of each other. As noted earlier, due to an absence of data, our assessments of recent	Not applicable

SDG target	Links with drivers	Indicator data used	Notes/Caveats	Standard deviation (and sample size) used to set threshold
	tourism, **poorly managed migration** and **land-grabbing/speculation**, including in situations of **post-conflict recovery**. Planning processes that are inclusive of wider society can also help increase **awareness and willingness** to act in a more sustainable way.	suggested in the VNR or national planning documents. Source: World Bank (2021) World Development Indicators. https://databank.worldbank.org/source/world-development-indicators	trend in this indicator are based solely on reports given in the VNRs and planning documents, meaning that this component of our work should be considered as having lower overall confidence compared with most other targets. This target was only considered as high national priority where settlement-planning processes considered matters of both sustainability and inclusiveness.	
16.1 Significantly reduce all forms of violence and related death rates everywhere	Opportunity target. Where they are ongoing, **violent conflicts** can have mixed implications for forests. While they may cause damage relating to displaced peoples, armed groups residing in forests and/or the breakdown of the rule of law, in hostile environments certain damaging activities may be prevented, including from taking place, including agriculture and the	Indicator 5.2 (Civil conflict is effectively limited) from the World Justice Project. Possible scores for this index range from 0 (very poor) to 1 (very good). World Justice Project (2021) World Justice Project.		0.17 (n = 128)

SDG target	Links with drivers	Indicator data used	Notes/Caveats	Standard deviation (and sample size) used to set threshold
	exploitation of forest resources. When seeking to reduce conflicts, governments must remain aware that land-grabbing and unsustainable practices may follow as a result.	https://worldjusticeproject.org/		
16.3 Promote the rule of law at the national and international levels and ensure equal access to justice for all	<u>Enabling target</u>. Poor law enforcement ins a driver in its own right, and its improvement can help to prevent **illegal activities** that damage forests, not least **illegal logging**. Where **demand for timber or other forest products** is high, effective laws can help prevent overexploitation. It can also go some way towards addressing issues such as **land-grabbing** (including after **violent conflicts** improve access), **poorly regulated migration, weak forest governance**, and some of the negative effects that can arise from **tourism**.	Indicator 6 (Regulatory Enforcement) from the World Justice Project. Possible scores for this index range from 0 (very poor) to 1 (very good). World Justice Project (2021) World Justice Project. https://worldjusticeproject.org/		0.146 (n = 128) **based on a target of 0.898, which is the highest value in 2020 **
16.5 Substantially reduce corruption and bribery in all their forms	<u>Enabling target</u>. **Corruption** is a commonly cited underlying driver, which this target can directly address. Corrupt officials may accept pay-offs to overlook **illegal logging**, or the bypassing of environmental regulations or safeguards by large projects, including **large-scale mining**, **agriculture**, **logging** and **tourism** operations, as well **infrastructure** projects. Reducing corruption can also help to reduce **land-grabbing** and the perpetuation of **unequal land allocation**	The Corruption Perceptions Index from Transparency International. Possible scores for this index range from 0 (very poor) to 100 (very good). Transparency International (2021) The Corruption Perceptions Index. https://www.transparency.org/en/cpi/2019/index/nzl		19 (n = 180) **based on a target of 88, which is the highest value in 2020 **

SDG target	Links with drivers	Indicator data used	Notes/Caveats	Standard deviation (and sample size) used to set threshold
	between the rich and the poor.			
16.6 Develop effective, accountable and transparent institutions at all levels	Enabling target. Greater levels of transparency and accountability in both the public and private sectors can allow greater scrutiny of decisions that can affect natural systems, thereby reducing the tendency for institutions to act in ways that disregard nature in favour of other institutional gains. The way that this target can influence forest conservation is largely the same as for target 16.5 on corruption (see above), but can additionally help address drivers relating to **poor planning and land administration frameworks**, and **weak or flawed governance**, which large companies may otherwise take advantage of.	Factor 3 (Open government) from the World Justice Project. Possible scores for this index range from 0 (very poor) to 1 (very good). World Justice Project (2021) World Justice Project. https://worldjusticeproject.org/	Note that the indicator used in this work pertains only to governmental transparency, as no similar dataset pertaining to the private sector was available.	0.150 (n = 128) **based on a target of 0.886, which is the highest value in 2020 **

Table C.3. Summary matrix showing all links between drivers (rows, listed alphabetically) and SDG targets (columns) used in this work. Detailed explanations are given in Tables C.1 and C.2 above. Continues over the page.

Driver	1.1/1.2	1.4	2.3	2.a	3.7	4.1	5.5	7.1 (#1)	7.1 (#2)	7.2	7.b	8.1	8.3	8.5	8.9	9.1	9.2	10.1	10.7	11.1	11.3	16.1	16.3	16.5	16.6
Civil conflict (recovering)		x		x								x			x	x	x		x	x	x		x		
Civil conflict / violence / instability (ongoing)																						x			
Commercial logging		x										x		x		x				x				x	x
Corruption																								x	
Demand for timber/NTFPS (domestic)	x	x										x						x							
Demand for timber/NTFPS (industrial)		x										x			x	x				x					
Domestic fuel production		x								x															
Energy infrastructure		x		x		x			x	x	x	x			x	x				x				x	x
High incidence of poverty	x																	x							
Illegal logging	x	x		x		x								x	x	x	x						x	x	x
Industrial infrastructure		x		x								x				x								x	x
In-migration (international)		x																	x	x			x		
Insecure or unclear land/property rights		x																							
Internal migration		x																	x	x			x		
Lack of alternative livelihoods	x					x						x	x	x	x		x	x							
Lack of improved techniques or technologies				x																					
Land grabbing/ speculation		x															x			x		x		x	x
Large-scale agriculture		x	x	x								x	x	x		x								x	x
Low levels of education	x					x																			
Low public awareness/willingness	x					x	x													x					
Mining/fossil fuel extraction		x										x								x				x	x
Other illegal activities *(see notes)*																							x		
Overharvesting of NTFPs	x	x										x		x	x			x							
Poor law/regulation enforcement																							x		

	1.1/1.2	1.4	2.3	2.a	3.7	4.1	5.5	7.1 (#1)	7.1 (#2)	7.2	7.b	8.1	8.3	8.5	8.9	9.1	9.2	10.1	10.7	11.1	11.3	16.1	16.3	16.5	16.6
Poor planning frameworks/land administration						x	x														x				x
Population growth					x	x	x																		
Settlements-associated infrastructure		x		x											x		x			x	x			x	x
Small-scale agriculture	x	x	x	x		x						x	x	x	x	x	x	x							
Small-scale logging	x	x		x		x								x	x	x	x		x						
Tourism		x										x			x					x			x	x	x
Transport infrastructure		x		x								x		x	x	x				x				x	x
Unequal land allocation (rich (inc. state) vs poor)	x	x																x	x	x				x	x
Weak or flawed governance/ institutional capacity						x	x													x			x		x

C.2. Supplementary results

Table C.4. Drivers recorded for each country, presented by descending number of total drivers. Y = driver ongoing, F = expected future driver. Far right column shows total recorded drivers for each country. Table continues over multiple pages.

	Land grabbing /speculation	Small scale agriculture	Commercial agriculture	Logging - commercial	Logging - small scale	Logging - illegal	Other illegal activities	Domestic fuel production	Overharvesting of non-fuel NTFPs	Mining/fossil fuel extraction	Infrastructure - energy	Infrastructure - transport	Infrastructure - urban development	Infrastructure - Industrial	Corruption	Poor law/regulation enforcement	Insecure or unclear land/property rights	Unequal land allocation (rich vs poor)	Poor planning frameworks/land administration	Weak or flawed governance/ institutional capacity	In-migration (international)	Internal migration	Population growth	High incidence of poverty	Lack of alternative livelihoods	Civil conflict / violence / instability (ongoing)	Civil conflict (recovering)	Demand for timber/NTFPS (domestic)	Demand for timber/NTFPS (industrial)	Low levels of education	Lack of improved agricultural/forestry techniques	Tourism	Low public awareness/willingness	Total drivers recorded
Mozambique	Y	Y	Y	Y	Y	Y		Y	Y	Y		Y	Y	Y	Y	Y	Y		Y	Y		Y	Y	Y	Y		Y		Y		Y	Y	Y	27
Nigeria		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y		Y	Y	Y	Y			Y	Y			Y	Y	27
Tanzania,	Y	Y		Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y		Y	Y	Y	Y	Y		Y	27
Cameroon		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y			Y	Y	Y			Y		Y	Y	Y	Y	25
Cambodia	Y	Y	Y	Y		Y	Y	Y		F	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				Y	Y		Y		Y	24
Guatemala		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y				Y					24
Philippines		Y			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y		Y	Y	Y	Y			Y	F	Y		Y	Y	24
Sri Lanka	Y	Y	Y			Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y		Y	Y	Y		Y	Y	Y				Y	Y	24

	Land grabbing /speculation	Small scale agriculture	Commercial agriculture	Logging - commercial	Logging - small scale	Logging - illegal	Other illegal activities	Domestic fuel production	Overharvesting of non-fuel NTFPs	Mining/fossil fuel extraction	Infrastructure - energy	Infrastructure - transport	Infrastructure - urban development	Infrastructure - Industrial	Corruption	Poor law/regulation enforcement	Insecure or unclear land/property rights	Unequal land allocation (rich vs poor)	Poor planning frameworks/land administration	Weak or flawed governance/ institutional capacity	In-migration (international)	Internal migration	Population growth	High incidence of poverty	Lack of alternative livelihoods	Civil conflict / violence / instability (ongoing)	Civil conflict (recovering)	Demand for timber/NTFPS (domestic)	Demand for timber/NTFPS (industrial)	Low levels of education	Lack of improved agricultural/forestry techniques	Tourism	Low public awareness/willingness	Total drivers recorded
Burkina Faso	Y	Y	Y			Y	Y	Y	Y	Y			Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y			Y		Y	Y		Y	23
Madagascar		Y	Y	Y	Y	Y	Y	Y	Y	Y	F		F		Y	Y	Y		Y	Y		Y	Y	Y	Y			Y	Y	Y	Y		Y	23
Togo		Y	Y		Y	Y		Y	Y	Y		Y	Y		Y	Y	Y	Y	Y	Y		Y	Y	Y	Y			Y		Y	Y		Y	23
Zambia		Y	Y	Y	Y	Y		Y	Y	Y		Y	Y		Y	Y	Y		Y	Y		Y	Y	Y	Y			Y	Y		Y		Y	23
Zimbabwe	Y	Y	Y	Y	Y	Y	Y	Y		Y		Y	Y		Y	Y	Y			Y		Y	Y	Y	Y			Y	Y		Y		Y	23
DRC		Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y			Y		Y	F	Y	Y	Y		Y					Y	22
El Salvador		Y	Y	Y	Y	Y		Y			Y	Y	Y	Y	Y	Y			Y	Y			Y	Y	Y	Y			Y	Y	Y		Y	22
India		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y			Y	Y			Y			Y	Y	Y				Y	Y	Y	Y	Y	22
PNG	Y	Y	Y	Y		Y		Y	Y	Y		Y	Y	Y	Y	Y	Y		Y	Y		Y	Y	Y	Y				Y				Y	22
Fiji	Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y		Y	Y		Y	Y		Y	Y		Y							Y		21
Gambia	Y	Y		Y		Y	Y	Y	Y			Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y								Y	21
Lao	Y	Y	Y	Y	Y			Y	Y	Y	Y	Y	Y		Y	Y	Y		Y	Y		Y	Y	Y					Y				Y	21
Malawi		Y		Y	Y	Y		Y	Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y			Y	Y	Y						Y		Y	21
Sierra Leone		Y	Y	Y	Y	Y		Y	Y	Y		Y	Y		Y	Y	Y			Y		Y	Y	Y			Y	Y	Y	Y				21
Thailand	Y	Y	Y			Y	Y		Y	Y	Y	Y	Y		Y	Y	Y	Y	Y	Y			Y	Y					Y			Y	Y	21
Vietnam		Y	Y	Y	Y	Y		Y	Y	Y		Y	Y		Y	Y	Y		Y	Y		Y	Y	Y	Y				Y	Y				21
Central Afr. Rep.		Y	Y	Y	Y	Y		Y	Y	Y		Y			Y	Y	Y	Y	Y	Y			Y	Y	Y	Y				Y				20
Guinea		Y	Y		Y	Y		Y	Y	Y	Y	Y	Y		Y	Y	Y			Y		Y	Y	Y	Y						Y		Y	20
Ghana		Y	Y			Y	Y	Y		Y	Y	Y	Y		Y	Y	Y			Y		Y	Y	Y	Y				Y	Y	Y			20

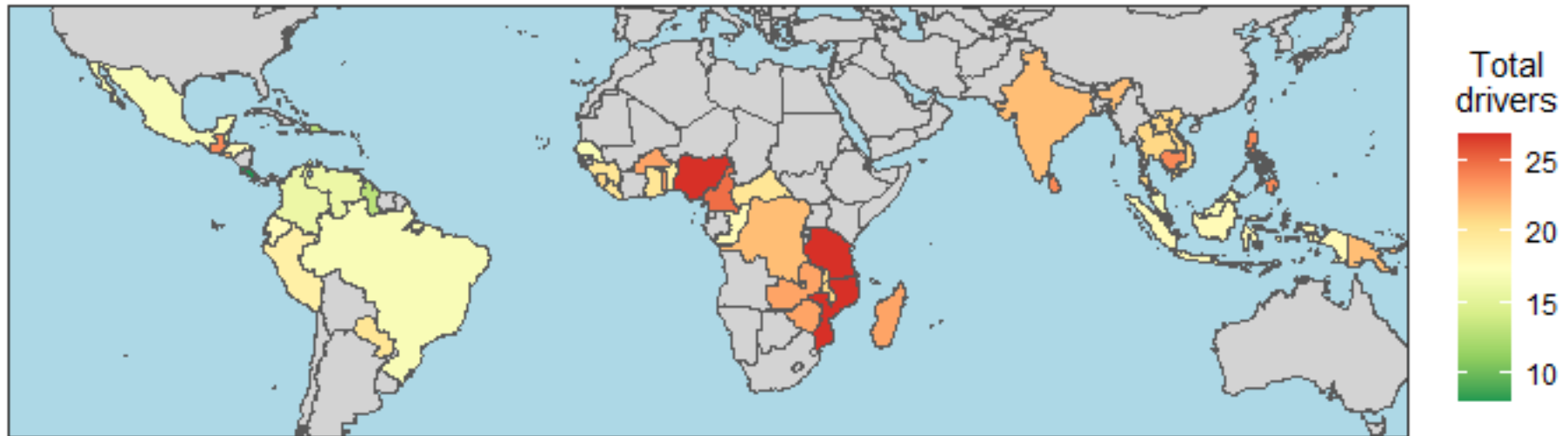|	Land grabbing /speculation	Small scale agriculture	Commercial agriculture	Logging - commercial	Logging - small scale	Logging - illegal	Other illegal activities	Domestic fuel production	Overharvesting of non-fuel NTFPs	Mining/fossil fuel extraction	Infrastructure - energy	Infrastructure - transport	Infrastructure - urban development	Infrastructure - Industrial	Corruption	Poor law/regulation enforcement	Insecure or unclear land/property rights	Unequal land allocation (rich vs poor)	Poor planning frameworks/land administration	Weak or flawed governance/ institutional capacity	In-migration (international)	Internal migration	Population growth	High incidence of poverty	Lack of alternative livelihoods	Civil conflict / violence / instability (ongoing)	Civil conflict (recovering)	Demand for timber/NTFPS (domestic)	Demand for timber/NTFPS (industrial)	Low levels of education	Lack of improved agricultural/forestry techniques	Tourism	Low public awareness/willingness	Total drivers recorded
Liberia		Y	Y	Y	Y	Y	Y	Y		Y		Y			Y	Y	Y		Y	Y		Y		Y	Y		Y	Y					Y	20
Paraguay	Y		Y			Y	Y	Y			Y	Y	Y		Y	Y		Y	Y	Y		Y	Y					Y	Y	Y	Y		Y	20
Benin		Y	Y		Y	Y	Y	Y				Y			Y	Y	Y		Y	Y	Y	Y	Y	Y	Y			Y			Y			19
Peru	Y	Y	Y			Y	Y	Y	Y	Y	Y	Y			Y	Y	Y		Y	Y		Y	Y	Y	Y									19
Timor-Leste		Y	Y	Y	Y			Y	Y			Y	Y			Y	Y		Y	Y		Y	Y	Y	Y			Y	Y		Y			19
Congo, Rep.		Y	Y	Y	Y			Y		Y		Y	Y		Y	Y	Y		Y	Y	Y	Y	Y	Y	Y									18
Ecuador		Y	Y	Y		Y		Y		Y	Y	Y	Y		Y	Y	Y			Y		Y	Y	Y				Y					Y	18
Honduras		Y	Y		Y	Y	Y					Y			Y	Y	Y		Y	Y		Y		Y				Y		Y	Y	Y	Y	18
Indonesia	Y	Y	Y	Y		Y				Y	Y	Y	Y		Y	Y	Y		Y	Y		Y	Y	Y									Y	18
Jamaica		Y		Y	Y		Y	Y	Y		Y	Y	Y		Y				Y	Y			Y	Y	Y				Y			Y	Y	18
Brazil	Y	Y	Y	Y	Y	Y				Y	Y	Y	Y		Y	Y	Y	Y	Y	Y		Y												17
Malaysia		Y	Y	Y	Y					Y	Y	Y	Y	Y	Y	Y	Y	Y		Y			Y	Y					Y					17
Mexico		Y	Y		Y		Y			Y		Y	Y	Y	Y	Y	Y			Y			Y	Y				Y	Y			Y		17
Senegal		Y	Y	Y	Y	Y		Y	Y			Y			Y	Y	Y		Y	Y				Y	Y			Y					Y	17
Belize		Y	Y		Y		Y				Y	Y			Y	Y				Y			Y	Y	Y					Y	Y	Y	Y	16
Colombia	Y	Y	Y		Y		Y			Y	Y	Y	Y		Y	Y	Y	Y				Y				Y							Y	16
Solomon Islands		Y	Y	Y	Y	Y		Y		Y					Y	Y	Y		Y	Y			Y	Y							Y		Y	16
Venezuela	Y	Y	Y	Y		Y	Y	Y		Y	Y	Y	Y		Y	Y	Y						Y				Y							16
Dominican Rep.		Y	Y		Y			Y		Y					Y	Y			Y	Y			Y	Y								Y	Y	13

	Land grabbing /speculation	Small scale agriculture	Commercial agriculture	Logging - commercial	Logging - small scale	Logging - illegal	Other illegal activities	Domestic fuel production	Overharvesting of non-fuel NTFPs	Mining/fossil fuel extraction	Infrastructure - energy	Infrastructure - transport	Infrastructure - urban development	Infrastructure - Industrial	Corruption	Poor law/regulation enforcement	Insecure or unclear land/property rights	Unequal land allocation (rich vs poor)	Poor planning frameworks/land administration	Weak or flawed governance/ institutional capacity	In-migration (international)	Internal migration	Population growth	High incidence of poverty	Lack of alternative livelihoods	Civil conflict / violence / instability (ongoing)	Civil conflict (recovering)	Demand for timber/NTFPS (domestic)	Demand for timber/NTFPS (industrial)	Low levels of education	Lack of improved agricultural/forestry techniques	Tourism	Low public awareness/willingness	Total drivers recorded
Guyana		Y		Y		Y		Y	Y	Y	F	Y	Y	F	Y	Y	Y		Y	Y														13
Costa Rica		Y		Y	Y			Y							Y	Y						Y						Y						8

Figure C.1. Map showing counts of recorded drivers per country (from a possible total of 33)

Table C.5. Summary values for the three assessment components (status, trend and priority) for all SDG targets considered in this work. Values show total numbers of countries in each of the categories used for each component, including those with no data, and total 48 in all cases.

SDG target	Status: total countries no data/ poor/ medium/ good	Trend: total countries no data/ declining/ stable/ improving	Priority: total countries low/ medium/ high
1.1/1.2	Excluding low confidence data: 16/11/4/17 Including low confidence data:1/23/7/17	Excluding low confidence data: 16/3/4/25 Including low confidence data: 3/4/8/33	1/7/40
1.4	Excluding low confidence data: 13/34/1/0 Including low confidence data: 9/37/2/0	Excluding low confidence data: 14/4/7/23 Including low confidence data: 10/4/8/26	10/21/17
2.3	0/19/15/14 (no low confidence data required)	0/17/8/23 (no low confidence data required)	3/6/39
2.a	0/13/10/25 (no low confidence data required)	0/27/4/17 (no low confidence data required)	3/6/39
3.7	Excluding low confidence data: 10/16/17/5 Including low confidence data: 9/17/17/5	Excluding low confidence data: 10/5/5/28 Including low confidence data: 9/6/5/28	17/12/19
4.1	Excluding low confidence data: 10/20/16/2 Including low confidence data: 4/22/19/3	Excluding low confidence data: 10/2/2/34 Including low confidence data: 2/2/2/42	1/1/46
5.5	0/32/10/6 (no low confidence data required)	0/9/2/37 (no low confidence data required)	10/14/24
6.1	Excluding low confidence data: 28/9/6/5 Including low confidence data: 4/14/15/15	Excluding low confidence data: 28/1/5/14 Including low confidence data: 6/2/11/29	3/5/40
7.1 (#1)	0/14/7/27 (no low confidence data required)	0/1/9/38 (no low confidence data required)	7/7/34

SDG target	Status: total countries no data/ poor/ medium/ good	Trend: total countries no data/ declining/ stable/ improving	Priority: total countries low/ medium/ high
7.1 (#2)	0/22/9/17 (no low confidence data required)	0/4/18/26 (no low confidence data required)	34/8/6
7.2	0/22/14/12 (no low confidence data required)	0/29/9/10 (no low confidence data required)	2/10/36
7.b	0/35/8/5 (no low confidence data required)	0/9/2/37 (no low confidence data required)	4/9/35
8.1	0/5/17/26 (no low confidence data required)	0/24/2/22 (no low confidence data required)	2/4/42
8.3	0/10/10/28 (no low confidence data required)	0/0/6/42 (no low confidence data required)	37/9/2
8.5	Excluding low confidence data: 12/4/7/25 Including low confidence data: 4/11/8/25	Excluding low confidence data: 18/12/2/16 Including low confidence data: 6/15/6/21	0/4/44
8.9	2/20/11/15 (no additional low confidence data found)	2/17/2/27 (no additional low confidence data found)	4/7/37
9.1	Excluding low confidence data: 2/36/10/0 Including low confidence data: 1/36/11/0	Excluding low confidence data: 3/7/14/24 Including low confidence data: 1/7/15/25	1/3/44
9.2	1/8/19/20 (no additional low confidence data found)	1/31/8/8 (no additional low confidence data found)	6/7/35
10.1	Excluding low confidence data: 17/24/5/2 Including low confidence data: 14/27/5/2	Excluding low confidence data: 17/7/8/16 Including low confidence data: 12/8/9/19	17/18/13
10.7	Excluding low confidence data: 16/13/4/15 Including low confidence data: 11/16/4/17	0/0/41/7 (Note that all data for this this component are low confidence)	23/16/9
11.1	Excluding low confidence data: 4/14/18/12 Including low confidence data: 2/14/19/13	Excluding low confidence data: 6/10/7/25 Including low confidence data: 3/10/7/28	3/6/39
11.3	0/8/0/40 (no additional low confidence data required)	0/0/39/9 (note that all data for this this component are low	14/27/7

SDG target	Status: total countries no data/ poor/ medium/ good	Trend: total countries no data/ declining/ stable/ improving	Priority: total countries low/ medium/ high
		confidence)	
16.1	Excluding low confidence data: 8/3/6/31 Including low confidence data: 0/5/7/36	Excluding low confidence data: 14/5/23/6 Including low confidence data: 4/6/29/9	13/10/25
16.3	Excluding low confidence data: 8/38/2/0 Including low confidence data: 6/40/2/0	Excluding low confidence data: 14/12/8/14 Including low confidence data: 4/16/10/18	1/2/45
16.5	2/44/2/0 (no additional low confidence data found)	Excluding low confidence data: 3/16/8/21 Including low confidence data: 1/16/8/23	4/6/38
16.6	Excluding low confidence data: 8/35/5/0 Including low confidence data: 5/38/5/0	Excluding low confidence data: 14/16/6/12 Including low confidence data: 5/11/9/17	1/10/37

Table C.2. Assessment summaries for all countries and targets. For each cell, the first value indicates status (1 = poor, 2 = medium, 3 = good), the second value indicates trend (1 = declining, 2 = stable, 3 = improving) and the third value indicates priority (1 = low, 2 = medium, 3 = high). Underscores show missing data values. Asterisks show cases where one or more data elements is lower confidence. Table continues over multiple pages.

	1.1 and/or 1.2 No poverty [opportunity]	1.4 land/ property ownership [opportunity]	2.1 No hunger [Enabling]	2.3 food production [Risk]	2.a agri research/ technology [Opportunity]	3.7/5.6 family planning [Enabling]	4.1 primary / secondary education [Enabling]	5.5 female decision-making [Enabling]
Belize	1.2.3*	_._1	2.3.1	2.1.3	1.1.3	2.2.1	2.3.3	1.3.2
Benin	1.1.3	1.1.3	2.3.3	3.2.2	2.3.3	1.2.3	1.1.3	1.1.3
Brazil	3.3.3*	1.3.3	3.3.1	3.3.3	3.3.3	2.3.1	2.3.3	1.3.1
Burkina Faso	1.3.3*	1._.2	2.3.3	1.2.3	3.1.3	1.2.3	1.3.3*	1.1.3
Cambodia	2.3.3	2.3.3*	2.2.2	3.3.3	3.3.2	2.1.1	1.3.3	1.1.3
Cameroon	1.2.3*	1.3.2	2.3.2	3.3.3	3.1.3	_._2	1.3.3	2.3.2
Central Afr.	1.1.3	_._1	1.1.3	1.1.2	3.3.2	_._1	_._3	1.1.2
Colombia	3.3.3	1.3.3	3.3.3	2.3.3	2.1.1	2.3.2	2.3.3	1.3.3
DRC	1.2.3*	1.1.2	1.1.2	2.3.1	3.1.3	_._3	1.3.1	1.3.3
Congo. Rep.	1.3.3	_._2	1.2.3	1.1.3	3.1.2	_._2	1.3.3	1.3.2
Costa Rica	1.3.3	1.3.2	3.2.1	3.3.1	1.1.1	2.3.1	2.3.3	3.3.1
Dominican	3.3.2	1.3.2	2.3.2	2.3.3	1.3.3	1.3.2	2.3.3	2.3.3
Ecuador	3.3.3	1.3.2	2.3.2	2.1.3	2.1.2	2.3.3	2.3.3	3.3.1
El Salvador	3.3.3	1.2.1	2.3.2	1.1.2	1.1.3	_._1	2.3.3	2.3.2
Fiji	1.3.2*	_._1	3.3.1	1.1.3	1.3.3	3.3.3	2.3.3*	1.3.3
Gambia	1.2.3	1.2.2*	2.3.2	1.1.3	2.2.3	_._3	1.3.3	1.3.3
Ghana	3.3.3	1.3.2	2.3.1	3.3.3	3.1.3	2.3.2	1.3.3	1.3.3
Guatemala	3.3.3	1.3.2	2.2.3	2.3.3	1.1.3	1.3.3	1.3.3	1.3.3
Guinea	1.1.2*	1._.3*	2.3.3	2.3.3	3.1.3	1.3.3	1.3.3	1.3.3
Guyana	_._3	1.3.3*	2.3.1	3.3.3	3.1.3	_._1	2.3.3	2.3.1
Honduras	2.2.3	1.3.2	2.3.2	1.1.2	1.3.3	2.3.1	1.3.3	1.3.1
India	2.3.2*	1.2.3	2.3.1	1.3.3	2.3.3	3.3.1	1.3.3	1.3.2
Indonesia	3.3.3	1.3.3	2.3.2	3.3.3	3.2.3	2.3.3	2.3.3	1.3.2
Jamaica	2.2.3*	1.3.2	2.2.1	1.1.3	1.2.3	2.3.2	2.3.3*	1.1.1
Lao	2.3.3*	_.3.1*	2.3.1	3.3.3	3.1.3	1.1.2	1.3.3	2.3.3
Liberia	1.3.3	1.1.3	1.2.2	1.1.3	3.1.3	1.1.2	1.3.3	1.2.3
Madagascar	1.3.2*	1.1.3	1.1.3	1.1.3	3.1.3	_._3	_._3	1.3.3
Malawi	1.2.2	1.3.2	2.3.1	3.2.3	2.3.3	1.3.3	1.1.3	1.3.2
Malaysia	3.3.3	2.3.2	3.3.1	3.2.3	1.1.3	3.3.1	_.3.3*	1.3.3
Mexico	3.3.1	1.3.1	3.3.1	2.2.3	2.1.3	2.3.1	2.3.2	3.3.2
Mozambique	1._.3*	1.3.1	1.3.2	1.1.1	3.3.3	1.3.3	1.3.3*	3.3.1
Nigeria	1._.3*	1.2.1	2.1.3	2.3.3	3.3.3	1.3.3	2.3.3	1.1.2
PNG	1.3.2*	_._2	_._1	3.2.3	3.3.3	2.2.3	_.3.3*	1.1.3
Paraguay	3.3.3	1.3.2	2.3.1	3.3.3	3.1.2	2.1.1	2.3.3	1.3.3
Peru	3.3.3	1.3.1	2.3.2	2.3.2	3.3.1	2.3.1	3.3.3	2.3.2
Philippines	3.3.3	1.3.2	2.3.1	2.1.3	2.3.3	2.3.3	3.3.3	2.3.1
Senegal	1.3.3	1.3.3	2.3.3	1.3.3	3.1.3	1.3.3	1.3.3	3.3.3
Sierra Leone	1.3.3	1.2.3	1.3.2	2.3.3	3.1.3	1.3.2	1.3.3	1.1.3
Solomon	1.3.3*	_._2	2.3.2	2.1.3	2.1.3	_._3	2.3.3*	1.3.2
Sri Lanka	3.3.3	1.2.2	2.3.1	1.3.3	2.1.3	3.3.1	3.3.3*	1.1.2
Tanzania	1.3.3	1.3.2	1.3.1	2.3.3	3.3.3	1.2.1	1.3.3	2.3.1
Thailand	3.2.3	1.2.3	2.3.1	3.2.3	1.3.3	3.3.2	2.2.3	1.3.2
Timor-Leste	1.3.3*	_._2	1.3.3	1.1.3	1.1.3	2.3.2	2.2.3	3.3.3
Togo	1.3.3	_._1	2.3.1	1.2.3	1.1.3	1.1.3	1.3.3	1.3.3
Venezuela	2.3.3	1.3.3	1.1.3	1.1.3	1.2.2	1.3.2	2.3.3	1.3.3
Vietnam	3.3.3	1.3.2		2.3.2	3.1.3	1.1.2*	2.3.3	2.2.1
Zambia	1.3.3	1.2.3	1.3.2	1.3.3	3.3.3	1.3.3	1.3.3	1.3.3
Zimbabwe	2.1.3	1.3.3	1.3.3	1.1.3	3.1.3	1.3.1	1.3.3	2.3.3

	7.1 modern energy #1 electricity [Risk]	7.1 modern energy #2 clean fuels [Opportunity]	7.2 renewable energies [Risk]	7.b expand energy infrastructure [Risk]	8.1 (per capita economic growth [Opportunity]	8.3 non-agriculture employment [Enabling]	8.5 employment [Enabling]	8.9 tourism [Opportunity]	9.1 transport infrastructure) [Risk]
Belize	3.3.2	3.2.1	1.3.3	2.3.3	2.3.3	3.3.1	3.3.3	3.3.3	2.2.3*
Benin	1.3.3	1.2.1	2.1.2	1.3.3	3.3.3	2.3.2	3.2.3	1.1.3	1.3.3
Brazil	3.2.1	3.3.1	1.2.1	3.3.3	2.1.3	3.3.1	1.1.3	1.1.2	2.3.3
Burkina Faso	1.3.3	1.3.2	2.1.2	1.3.3	3.3.3	3.3.1	2.1.3*	1.1.2	1.3.3
Cambodia	3.3.3	1.3.1	2.1.3	1.3.3	3.3.3	3.3.2	3.3.3	3.2.3	1.2.3
Cameroon	2.3.3	1.3.1	3.3.3	1.1.3	2.1.3	2.3.1	3.3.3	2.3.2	1.3.3
Central Afr. Rep.	1.3.3	1.2.1	3.1.2	1.1.2	3.3.3	1.2.2	1.3.3	..1	1..2
Colombia	3.2.3	3.3.1	1.2.3	2.3.2	2.1.1	3.3.1	2.3.3	2.3.3	1.3.3
DRC	1.3.3	1.2.2	3.2.2	1.1.3	3.3.3	1.3.1	1.3.3	1.3.3	1.1.3
Congo. Rep.	2.3.3	2.3.2	2.3.3	1.3.2	1.1.3	3.3.1	1.3.3*	1.3.3	1.3.3
Costa Rica	3.2.1	3.3.1	1.1.2	3.3.1	2.1.3	3.2.1	2.1.3	3.1.3	1.2.3
Dominican Rep.	3.2.1	3.2.1	1.1.3	1.3.2	3.1.2	3.3.1	3.3.3	3.1.3	1.3.3
Ecuador	3.2.1	3.2.1	1.3.2	2.3.1	2.1.3	3.2.1	2.2.3	2.3.3	2.3.2
El Salvador	3.3.2	3.3.1	1.3.3	2.3.1	2.3.3	3.3.1	3.3.3	2.3.3	1.1.2
Fiji	3.3.3	2.1.3	1.1.3	2.3.3	3.3.3	3.3.1	3.3.3	3.3.3	1.3.3
Gambia	2.3.3	1.2.3	2.1.3	1.3.3	3.3.2	3.3.1	1.2.3*	3.3.3	1.1.3
Ghana	3.3.3	2.3.1	1.1.3	1.3.3	3.1.3	3.3.1	2.1.3*	1.1.3	1.3.3
Guatemala	3.3.3	2.3.2	2.3.3	1.3.1	2.3.3	3.3.1	3.3.3	2.1.3	1.2.3
Guinea	1.3.3	1.2.1	3.2.3	1.3.3	3.1.3	1.3.2	2..3*	1.3.3	1.1.3
Guyana	3.3.2	3.3.1	1.1.3	1.3.2	3.1.3	3.3.1	1.1.2	1.1.3	1.3.3
Honduras	3.3.1	2.3.1	2.3.3	1.3.3	2.3.3	3.3.1	3.1.3	2.1.2	1.3.3
India	3.3.3	2.3.2	1.1.3	1.3.2	3.3.3	2.3.2	3.1.3	1.3.3	2.2.3
Indonesia	3.3.3	3.3.1	1.1.3	1.1.3	3.2.3	3.3.2	3.1.3	2.3.3	2.2.3
Jamaica	3.3.1	3.2.1	1.3.3	1.3.2	2.3.2	3.3.1	2.3.3*	3.3.3	1.3.3
Lao	3.3.3	1.3.1	2.1.2	3.3.2	3.1.3	1.3.3	1.1.3*	2.1.3	1.3.3
Liberia	1.3.3	1.2.2	3.1.3	1.3.3	1.1.3	2.3.1	3.1.2	..1	1.1.3
Madagascar	1.3.3	1.2.1	3.2.3	1.3.3	2.3.3	1.3.1	3.1.3	3.3.3	1.2.3
Malawi	1.3.3	1.2.3	3.1.3	1.2.3	2.1.3	2.3.1	1.2.3*	1.1.3	1.2.3
Malaysia	3.2.3	3.2.1	1.3.3	2.3.3	3.3.3	3.3.1	3.1.3	2.3.3	2.2.3
Mexico	3.2.2	3.2.1	1.2.2	1.3.3	2.3.3	3.3.1	3.3.3	1.2.1	2.3.3
Mozambique	1.3.3	1.2.1	2.1.3	1.1.3	2.1.3	1.3.1	3..3	1.1.3	1.3.3
Nigeria	2.3.3	1.3.1	3.1.3	1.1.3	1.1.3	3.3.1	2.1.3	1.3.2	1.3.3
PNG	2.3.3	1.3.1	2.1.3	1.1.3	1.1.3	1.3.1	..3	1.3.2	1.2.3
Paraguay	3.2.3	3.3.1	2.1.3	3.2.3	3.1.3	3.3.1	3.1.3	1.3.3	1.2.3
Peru	3.3.2	3.3.1	1.1.1	2.3.3	3.1.2	3.2.1	..2	1.3.1	1.1.1
Philippines	3.3.3	2.3.1	1.1.2	1.3.3	3.3.3	3.3.2	3.3.3	2.3.3	2.3.3
Senegal	2.3.3	1.1.1	1.1.2	1.3.3	3.3.3	3.3.1	1.3.3*	2.1.3	1.3.3
Sierra Leone	1.3.3	1.2.1	3.1.3	1.3.3	3.1.3	1.3.2	3..3	1.1.3	1.2.3
Solomon Islands	2.3.3	1.3.2	2.2.3	1.3.3	2.2.3	2.3.1	.2.3*	3.3.3	1.3.3
Sri Lanka	3.3.2	2.3.1	2.2.3	1.3.3	3.1.3	3.3.1	3.3.3	3.3.2	1.3.3
Tanzania	1.3.3	1.2.2	3.1.3	1.1.3	3.3.3	1.3.2	3.3.3	3.3.3	.3.3*
Thailand	3.3.1	3.3.1	1.2.3	1.3.2	3.3.3	3.3.1	3.3.3	3.3.3	2.2.3
Timor-Leste	3.3.3	1.3.3	1.1.3	1.3.3	2.3.3	2.3.1	3.3.3*	3.3.3	2.3.3
Togo	1.1.3	1.3.3	2.1.3	1.1.3	3.1.3	2.3.1	3.3.3	3.3.3	1.2.3
Venezuela	3.2.2	3.2.1	1.1.3	3.3.3	1.1.1	3.2.1	1.3.2*	1.3.3	1.1.3
Vietnam	3.3.3	3.3.1	1.1.3	2.3.3	3.3.3	2.3.3	3.1.3	1.1.3	2.3.3
Zambia	1.3.3	1.1.3	3.1.3	1.3.3	2.1.3	2.3.1	2.2.3*	2.1.3	1.3.3
Zimbabwe	1.3.3	2.1.1	3.3.3	1.3.3	3.1.3	1.2.1	1.1.3*	1.1.3	1.2.3

	9.2 industrialization and manufacturing [Opportunity]	10.1 income equality [Opportunity]	10.7 responsible migration [Enabling]	11.1 access to housing [Risk]	11.3 inclusive, participatory settlement planning [Enabling]	16.1 reduce war and conflict [Opportunity]	16.3 rule of law [Enabling]	16.5 reduce corruption [Enabling]	16.6 accountable /transparent institutions [Enabling]
Belize	1.1.1	. .3	.2.1*	3.3.1	1.2.1*	3.2.1	1.1.3	. .1	1.1.2
Benin	2.1.2	1.1.3	.2.2*	1.3.3	1.2.2*	3. .2	2.3.3*	1.3.3	1.2.2*
Brazil	2.1.2	1.2.1	1.2.1*	3.3.3	3.3.2*	3.2.1	1.2.3	1.1.3	2.3.3
Burkina Faso	1.1.3	3.3.2	3.2.1*	1.2.3	1.2.2*	2.1.3	1.3.3	1.3.3	1.3.3
Cambodia	3.3.3	. .1	3.2.1*	2.3.3	3.3.2*	3.2.3	1.1.3	1.2.3	1.1.3
Cameroon	3.3.3	1.1.2	1.2.1*	2.3.3	3.2.1*	1.1.2	1.3.3	1.2.3	1.1.3
Central Afr. Rep.	3.1.2	1.2.2	1.2.2*	1.2.3	1.2.2*	1.2.3*	1.1.3*	1.2.3	1.3.2*
Colombia	2.1.2	1.3.2	2.3.3*	2.1.3	3.2.1*	3.2.3	1.3.3	1.3.3	2.3.3
DRC	3.3.3	. .2	.2.1*	1.1.3	3.2.2*	1.1.3*	1. .3	1.1.3	1. .3
Congo. Rep.	2.3.3	. .3	1.2.2*	2.2.3	3.2.2*	2.3.3*	1.2.3*	1.1.3	1.1.3*
Costa Rica	2.1.1	1.2.2	.2.2*	3.3.3	3.2.2*	3.2.2	2.3.3	2.3.1	2.3.2
Dominican Rep.	3.1.3	1.3.2	.2.3*	3.2.3	3.2.2*	3.2.1	1.2.3	1.1.3	1.2.3
Ecuador	3.2.3	1.3.3	3.3.2*	3.3.3	3.2.2*	3.2.2	1.2.3	1.3.3	1.2.3
El Salvador	3.2.1	1.3.2	3.2.2*	3.3.3	3.2.2*	3.2.2	1.3.3	1.1.3	2.3.3
Fiji	2.1.3	.3.1*	2.2.1*	3. .3	3.2.3*	3.2.1*	. .3	.3.2*	. .2
Gambia	1.1.3	2.3.1	3.2.1*	2.3.1	3.2.2*	3. .1	1.3.3*	1.3.3	1.3.3*
Ghana	2.3.3	1.1.3	3.3.3*	2.3.3	3.2.2*	3.2.1	1.1.3	1.1.3	1.1.3
Guatemala	3.2.1	1.3.1	2.2.2*	2.3.3	3.2.1*	3.2.1	1.3.3	1.3.3	1.3.3
Guinea	2.1.3	. .3	3.2.1*	1.1.3	3.2.2*	3. .3	1.1.3*	1.3.3	1.2.3*
Guyana	1.1.2	1.3.1*	.2.1*	2.3.3	1.3.2*	3.2.1	1.1.3	1.3.3	1.1.3
Honduras	3.1.1	1.2.2	1.2.3*	2.1.2	1.2.1*	3.2.1	1.1.3	1.1.2	1.1.3
India	3.1.3	1.3.2*	1.2.1*	2.1.3	3.2.3*	2.2.1	1.3.3	1.3.2	2.3.3
Indonesia	3.1.3	1.2.3*	.2.1*	2.1.3	3.2.1*	2.1.3	1.3.3	1.3.3	1.1.3
Jamaica	2.2.3	. .1	2.3.2*	1.2.3	1.3.3*	3.2.2	1.2.3	1.3.3	1.3.3
Lao	2.1.3	.1.1*	1.3.3*	3.3.1	3.2.2*	3.2.2*	.3.3*	1.3.2	. .3
Liberia	1.1.3	1.3.2	3.2.1*	1.2.3	3.2.2*	3.3.3	1.3.3	1.1.3	1.1.3
Madagascar	2.2.3	. .2	. .3*	1.3.3	3.2.2*	3.2.3	1.1.3	1.1.3	1.2.3
Malawi	2.1.3	2.2.1	1.2.1*	1.3.2	1.2.2*	3.2.2	1.2.1	1.1.3	1.1.3
Malaysia	3.1.3	1.3.3	.2.3*	.3.3*	1.2.2*	3.3.3	1.3.3	2.2.3	1.2.3
Mexico	3.3.1	1.3.1	1.2.3*	3.1.3	3.2.1*	3.3.2	1.1.3	1.1.3	2.3.2
Mozambique	2.1.3	1.1.2	3.2.1*	1.3.3	3.2.1*	2.2.3*	1.1.3*	1.1.3	1.2.3*
Nigeria	2.3.3	. .1	2.2.2*	1.3.3	3.2.1*	1.3.3	1.2.2	1.1.3	1.1.3
PNG	1.1.3	. .1	1.2.1*	2.3.2*	3.2.1*	1.2.3*	.3.3*	1.3.3	. .3
Paraguay	3.2.3	1.2.3	2.2.1*	3.2.2	1.2.3*	3.2.1*	. .3	1.3.2	. .3
Peru	3.1.3	1.3.1	3.2.1*	2.3.3	3.2.1*	3.2.1	1.2.3	1.2.3	1.2.3
Philippines	3.1.3	1.3.3	3.2.2*	2.1.3	3.2.2*	2.1.3	1.1.3	1.2.3	1.1.3
Senegal	3.3.3	. .2	2.2.1*	2.3.3	3.2.2*	3.2.3	1.3.3	1.3.3	1.1.2
Sierra Leone	1.1.3	2.3.2	2.2.2*	1.3.3	1.2.2*	3.2.3	1.1.3	1.3.3	1.3.3
Solomon Islands	. .3	. .1	1.2.1*	. .3	3.2.2*	3.3.2*	. .3	1.3.3*	.3.2*
Sri Lanka	3.1.2	2.2.3	3.3.3*	3.3.3*	3.2.1*	3.3.3	1.1.3	1.1.3	1.1.3
Tanzania	2.1.3	2.3.2	3.2.2*	2.3.3	3.3.2*	3.2.2	1.3.2	1.3.1	1.1.2
Thailand	3.1.3	1.3.3	3.2.2*	3.3.3	3.3.3*	2.1.3	1.1.3	1.2.3	1.3.3
Timor-Leste	1.2.2	3.2.1	1.2.1*	2. .2	3.2.1*	3.3.3*	. .3	1.3.1	1.3.3*
Togo	2.1.3	1.1.2	3.2.1*	1.3.3	3.3.2*	3. .3	1.2.3*	1.2.3	1.3.3*
Venezuela	2.1.3	. .1	.2.1*	2.1.3	3.2.2*	3.2.3	1.1.3	1.1.2	1.1.1
Vietnam	3.1.3	1.1.1	1.2.2*	3.3.2	1.3.1*	3.3.3	1.3.3	1.3.3	1.3.3
Zambia	2.2.3	1.1.3	1.2.1*	1.3.3	3.2.2*	3.2.1	1.3.3	1.1.3	1.1.3
Zimbabwe	2.1.3	1.3.2	.3.2*	2.1.3	3.3.3*	3.2.3	1.2.3	1.3.3	1.2.3

Table C.6. Summaries of key assessment outcomes for all risk targets by region and for all countries combined. For each target, Includes counts and proportions of countries with high potential for change (poor status), observed improving trend, and high government priority. Combined assessment summaries show number and proportions of countries of all combinations of potential for change (higher = poor or medium status; low = good status) and likelihood of change (high = likely; low = unlikely or possible). Values in parentheses show total countries with unavailable data. Bold text highlights cases where ≥50% of countries fall within a given category. Table continues over the page.

		Target 2.3		Target 6.1		Target 7.1 (#1)		Target 7.2		Target 7.b.		Target 9.1.		Target 11.1.	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Africa (n = 20)	Total high potential	**11**	**55**	7	35	14	70	2	10	**20**	**100**	**19 (1)**	**95**	**13**	**95**
	Total improving trend	9	45	**13 (2)**	**65**	19	95	3	15	**12**	**60**	**10 (1)**	**50**	13	50
	Total high priority	**16**	**80**	**20**	**100**	20	100	15	75	18	90	19	95	18	90
	Low potential + low likelihood	2	10	2	10	0	0	**10**	**50**	0	0	0	0	0	0
	Low potential + high likelihood	2	10	3	15	1	5	2	10	0	0	0	0	0	0
	High potential + low likelihood	**10**	**50**	3	15	1	5	7	35	9	45	9	45	9	45
	High potential + high likelihood	6	30	**10**	**50**	**18**	**90**	1	5	**11**	**55**	9	45	**11**	**55**
	Unknown	0	0	2	10	0	0	0	0	0	0	2	10	0	0
Asia/Pacific (n = 13)	Total high potential	4	31	5 (2)	38	0	0	**8**	**62**	**9**	**69**	6	46	0 (2)	0
	Total improving trend	6	46	6 (2)	46	**12**	**92**	1	8	**11**	**85**	7	54	6 (3)	46
	Total high priority	**12**	**92**	**11**	**85**	11	85	11	85	10	77	13	100	9	69
	Low potential + low likelihood	3	23	3	23	3	23	0	0	1	8	0	0	2	15
	Low potential + high likelihood	3	23	2	15	**8**	**62**	0	0	0	0	0	0	2	15
	High potential + low likelihood	5	38	2	15	0	0	**12**	**92**	4	31	6	46	4	31
	High potential + high likelihood	2	15	4	31	2	15	1	8	**8**	**62**	7	54	1	8
	Unknown	0	0	2	15	0	0	0	0	0	0	0	0	4	31
LAC (n = 15)	Total high potential	4	27	2 (2)	13	0	0	**12**	**80**	6	40	**11**	**73**	1	7
	Total improving trend	**8**	**53**	**10 (2)**	**67**	7	47	**6**	**40**	14	93	8	53	8	53
	Total high priority	**11**	**73**	9	60	3	20	**10**	**67**	7	47	**12**	**80**	12	80
	Low potential + low likelihood	1	7	2	13	**14**	**93**	0	0	2	13	0	0	4	27

		Target 2.3		Target 6.1		Target 7.1 (#1)		Target 7.2		Target 7.b.		Target 9.1.		Target 11.1.	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
	Low potential + high likelihood	3	20	3	20	1	7	0	0	2	13	0	0	4	27
	High potential + low likelihood	**8**	**53**	5	33	0	0	**10**	**67**	7	47	**8**	**53**	4	27
	High potential + high likelihood	3	20	3	20	0	0	5	33	4	27	7	47	3	20
	Unknown	0	0	2	13	0	0	0	0	0	0	0	0	0	0
All (n = 48)	Total high potential	19	40	14	29	14	29	22	46	**35**	**73**	**36**	**75**	14	29
	Total improving trend	23	48	**29**	**60**	38	79	10	21	**37**	**77**	24	50	**28**	**58**
	Total high priority	**39**	**81**	40	83	34	71	36	75	35	73	44	92	39	81
	Low potential + low likelihood	6	13	7	15	17	35	10	21	3	6	0	0	6	13
	Low potential + high likelihood	8	17	8	17	10	21	2	4	2	4	0	0	6	13
	High potential + low likelihood	23	48	10	21	1	2	**29**	**60**	20	42	23	48	17	35
	High potential + high likelihood	11	23	17	35	20	42	7	15	23	48	23	48	15	31
	Unknown	0	0	6	13	0	0	0	0	0	0	2	4	4	8

Table C.7. Summaries of key assessment outcomes for all opportunity targets by region and for all countries combined. For each target, Includes counts and proportions of countries with high potential for change (poor status), observed improving trend, and high government priority. Combined assessment summaries show number and proportions of countries of all combinations of potential for change (higher = poor or medium status; low = good status) and likelihood of change (high = likely; low = unlikely or possible). Values in parentheses show total countries with unavailable data. Bold text highlights cases where ≥50% of countries fall within a given category. Table continues over the page.

		Target 1.1/1.2		Target 1.4.		Target 2.a		Target 8.1		Target 8.9		Target 9.2		Target 10.1.		Target 16.1	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Africa (n = 20)	Total high potential	**18**	**90**	**17 (1)**	**85**	1	5	3	15	**11 (2)**	**55**	4	20	9 (6)	45	4	20
	Total improving trend	**10 (2)**	**50**	7 (5)	35	7	35	8	40	9 (2)	45	6	30	6 (6)	30	3 (4)	15
	Total high priority	**17**	**85**	8	40	**18**	**90**	**19**	**95**	**15**	**75**	**18**	**90**	5	25	**13**	**65**
	Low potential + low likelihood	0	0	0	0	**12**	**60**	6	30	0	0	1	5	1	5	8	40
	Low potential + high likelihood	1	5	0	0	4	20	6	30	4	20	3	15	0	0	1	5
	High potential + low likelihood	9	45	**13**	**65**	2	10	7	35	**11**	**55**	**13**	**65**	**13**	**65**	5	25
	High potential + high likelihood	8	40	2	10	2	10	1	5	3	15	3	15	0	0	2	10
	Unknown	2	10	5	25	0	0	0	0	2	10	0	0	6	30	4	20
Asia/Pacific (n = 13)	Total high potential	4	31	6 (5)	46	4	31	1	8	3	23	2 (1)	15	6 (5)	46	1	8
	Total improving trend	**12**	**92**	6 (4)	46	6	46	8	62	**10**	**77**	1 (1)	8	4 (3)	31	5	38
	Total high priority	**10**	**77**	4	31	**12**	**92**	**13**	**100**	**11**	**85**	**10**	**77**	5	38	**9**	**69**
	Low potential + low likelihood	1	8	0	0	4	31	3	23	2	15	**7**	**54**	1	8	4	31
	Low potential + high likelihood	5	38	0	0	1	8	7	54	4	31	1	8	0	0	4	31
	High potential + low likelihood	3	23	6	46	4	31	2	15	3	23	4	31	4	31	5	38
	High potential + high likelihood	4	31	2	15	4	31	1	8	4	31	0	0	3	23	0	0
	Unknown	0	0	5	38	0	0	0	0	0	0	1	8	5	38	0	0
LAC (n =	Total high potential	1 (1)	7	**14 (1)**	**93**	**8**	**53**	1	7	6	40	2	13	**12 (3)**	**80**	0	0
	Total improving trend	**11 (1)**	**73**	**13 (1)**	**87**	4	27	6	40	**8**	**53**	1	7	**8 (3)**	**53**	1	7

		Target 1.1/1.2		Target 1.4.		Target 2.a		Target 8.1		Target 8.9		Target 9.2		Target 10.1.		Target 16.1	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
	Total high priority	**13**	**87**	4	27	**9**	**60**	**10**	**67**	**11**	**73**	6	40	3	20	2	13
	Low potential + low likelihood	2	13	0	0	3	20	4	27	2	13	**8**	**53**	0	0	15	100
	Low potential + high likelihood	**8**	**53**	0	0	1	7	0	0	2	13	0	0	0	0	0	0
	High potential + low likelihood	3	20	**10**	**67**	9	60	6	40	6	40	7	47	**11**	**73**	0	0
	High potential + high likelihood	1	7	4	27	2	13	5	33	5	33	0	0	1	7	0	0
	Unknown	1	7	1	7	0	0	0	0	0	0	0	0	3	20	0	0
	Total high potential	23	48	**37**	**77**	13	27	5	10	20	42	8	17	**27**	**56**	5	10
	Total improving trend	**33**	**69**	26	54	17	35	22	46	**27**	**56**	8	17	18	38	9	19
All (n = 48)	Total high priority	**40**	**83**	16	33	**39**	**81**	**42**	**88**	**37**	**77**	**34**	**71**	13	27	**24**	**50**
	Low potential + low likelihood	3	6	0	0	19	40	13	27	4	8	16	33	2	4	**27**	**56**
	Low potential + high likelihood	14	29	0	0	6	13	13	27	10	21	4	8	0	0	5	10
	High potential + low likelihood	15	31	**29**	**60**	15	31	15	31	20	42	**24**	**50**	**28**	**58**	10	21
	High potential + high likelihood	13	27	8	17	8	17	7	15	12	25	3	6	4	8	2	4
	Unknown	3	6	11	23	0	0	0	0	2	4	1	2	14	29	4	8

Table C.8. Summaries of key assessment outcomes for all enabling targets by region and for all countries combined. For each target, Includes counts and proportions of countries with high potential for change (poor status), observed improving trend, and high government priority. Combined assessment summaries show number and proportions of countries of all combinations of potential for change (higher = poor or medium status; low = good status) and likelihood of change (high = likely; low = unlikely or possible). Values in parentheses show total countries with unavailable data. Bold text highlights cases where ≥50% of countries fall within a given category. Table continues over the page.

		Target 3.7		Target 4.1		Target 5.5		Target 7.1 (#2)		Target 8.3		Target 8.5		Target 10.7		Target 11.3		Target 16.3		Target 16.5		Target 16.6	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No	%	No.	%	No.	%	No.	%
Africa (n = 20)	Total high potential	**13 (6)**	**65**	**17 (2)**	**85**	**15**	**75**	**17**	**85**	8	40	7	35	5 (4)	25	5	25	**19**	**95**	**20**	**100**	**20**	**100**
	Total improving trend	9 (6)	45	**16 (2)**	**80**	**14**	**70**	6	30	**18**	**90**	7 (3)	35	2 (1)	10	3	15	8 (1)	40	8	40	5 (1)	25
	Total high priority	**12**	**60**	**19**	**95**	**13**	**65**	4	20	0	0	**19**	**95**	2	10	1	5	**17**	**85**	**19**	**95**	**16**	**80**
	Low potential + low likelihood	0	0	0	0	1	5	0	0	6	30	3	15	7	35	**14**	**70**	0	0	0	0	0	0
	Low potential + high likelihood	0	0	0	0	1	5	0	0	0	0	3	15	1	5	1	5	0	0	0	0	0	0
	High potential + low likelihood	8	40	3	15	**10**	**50**	**19**	**95**	**14**	**70**	7	35	8	40	5	25	12	60	**13**	**65**	**15**	**75**
	High potential + high likelihood	6	30	**15**	**75**	8	40	1	5	0	0	4	20	0	0	0	0	7	35	7	35	4	20
	Unknown	6	30	2	10	0	0	0	0	0	0	3	15	4	20	0	0	1	5	0	0	1	5
Asia/Pacific (n = 13)	Total high potential	2 (1)	15	3 (2)	23	**9**	**69**	5	38	2	15	1 (2)	8	6 (2)	46	2	15	**8 (5)**	**62**	**11 (1)**	**85**	**8 (4)**	**62**
	Total improving trend	**7 (1)**	**54**	**11**	**85**	**9**	**69**	**11**	**85**	**13**	**100**	6 (1)	46	2	15	3	23	6 (3)	46	**8**	**62**	5 (3)	38
	Total high priority	5	38	**13**	**100**	6	46	2	15	2	15	**13**	**100**	2	15	3	23	**13**	**100**	9	69	11	85
	Low potential + low likelihood	4	31	0	0	0	0	4	31	**7**	**54**	4	31	3	23	**10**	**77**	0	0	0	0	0	0
	Low potential + high likelihood	1	8	2	15	1	8	0	0	0	0	6	46	1	8	1	8	0	0	0	0	0	0
	High potential + low likelihood	5	38	2	15	**9**	**69**	8	62	4	31	1	8	6	46	2	15	4	31	**8**	**62**	5	38
	High potential + high likelihood	2	15	**7**	**54**	3	23	1	8	2	15	0	0	1	8	0	0	4	31	4	31	4	31
	Unknown	1	8	2	15	0	0	0	0	0	0	2	15	2	15	0	0	5	38	1	8	4	31
LAC (n =	Total high potential	3 (2)	20	2	13	**8**	**53**	0	0	0	0	3 (1)	20	3 (5)	20	5	33	**13 (1)**	**87**	**13 (1)**	**87**	**9 (1)**	**60**
	Total improving trend	**11 (2)**	**73**	**14**	**93**	**14**	**93**	9	60	11	73	**8 (1)**	**53**	3	20	3	20	4 (1)	27	7 (1)	47	7 (1)	47

		Target 3.7		Target 4.1		Target 5.5		Target 7.1 (#2)		Target 8.3		Target 8.5		Target 10.7		Target 11.3		Target 16.3		Target 16.5		Target 16.6	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No	%	No.	%	No.	%	No.	%
	Total high priority	2	13	**14**	**93**	5	33	0	0	0	0	**12**	**80**	3	20	2	13	**15**	**100**	**10**	**67**	**11**	**73**
	Low potential + low likelihood	0	0	0	0	3	20	**13**	**87**	**15**	**100**	2	13	3	20	**10**	**67**	0	0	0	0	0	0
	Low potential + high likelihood	0	0	1	7	0	0	0	0	0	0	5	33	0	0	0	0	0	0	0	0	0	0
	High potential + low likelihood	**11**	**73**	1	7	7	47	2	13	0	0	5	33	6	40	4	27	**10**	**67**	9	60	9	60
	High potential + high likelihood	2	13	**13**	**87**	5	33	0	0	0	0	2	13	1	7	1	7	4	27	5	33	5	33
	Unknown	2	13	0	0	0	0	0	0	0	0	1	7	5	33	0	0	1	7	1	7	1	7
All (n = 48)	Total high potential	18	38	22	46	**32**	**67**	22	46	10	21	11	23	14	29	12	25	**40**	**83**	44	92	37	77
	Total improving trend	**27**	**56**	**41**	**85**	**37**	**77**	**26**	**54**	**42**	**88**	21	44	7	15	9	19	18	38	23	48	17	35
	Total high priority	19	40	**46**	**96**	24	50	6	13	2	4	**44**	**92**	7	15	6	13	**45**	**94**	38	79	38	79
	Low potential + low likelihood	4	8	0	0	4	8	17	35	**28**	**58**	9	19	13	27	34	71	0	0	0	0	0	0
	Low potential + high likelihood	1	2	3	6	2	4	0	0	0	0	14	29	2	4	2	4	0	0	0	0	0	0
	High potential + low likelihood	**24**	**50**	6	13	**26**	**54**	**29**	**60**	18	38	13	27	20	42	11	23	**26**	**54**	30	63	29	60
	High potential + high likelihood	10	21	**35**	**73**	16	33	2	4	2	4	6	13	2	4	1	2	15	31	16	33	13	27
	Unknown	9	19	4	8	0	0	0	0	0	0	6	13	11	23	0	0	7	15	2	4	6	13