



Convention on Biological Diversity

Distr.
GENERAL

UNEP/CBD/SBSTTA/20/INF/35
19 April 2016

ENGLISH ONLY

SUBSIDIARY BODY ON SCIENTIFIC, TECHNICAL AND TECHNOLOGICAL ADVICE

Twentieth meeting

Montreal, Canada, 25-30 April 2016

Item 10 of the provisional agenda*

GUIDANCE, TOOLS AND INITIATIVES SUPPORTING ECOSYSTEM RESTORATION

Note by the Executive Secretary

1. The Executive Secretary is circulating herewith, for the information of participants in the twentieth meeting of the Subsidiary Body on Scientific, Technical and Technological Advice, a document on guidance, tools and initiatives supporting ecosystem restoration.
2. The guidance, tools and initiatives supporting ecosystem restoration are relevant to the work of the Convention on Biological Diversity, in particular with regards to Article 8(f) and decisions X/2, X/17, XI/16 and XII/19 with respect to ecosystem restoration.
3. The below tables provide listings of initiatives, frameworks, agencies and tools (Table 1), practical guidance at generic level (Table 2), and practical guidance on restoration linked with specific ecosystems, and sectors (Table 3). These tables are intended to provide examples of the amount and type of support available to Parties on the subject of ecosystem restoration. The listings in the tables are in no particular order.

* UNEP/CBD/SBSTTA/20/1/Rev.1.

Table 1. Examples of initiatives, frameworks, agencies or tools linked directly to ecosystem restoration at generic level.

Agency/Initiative	Details
United Nations Convention to Combat Desertification (UNCCD) & its Global Mechanism (GM)	<p>The UNCCD http://www.unccd.int/ addresses specifically the arid, semi-arid and dry sub-humid areas, known as the drylands, where some of the most vulnerable ecosystems and peoples can be found. In the 10-Year Strategy (2008-2018), Parties further specified their goals: "to forge a global partnership to reverse and prevent desertification/land degradation and to mitigate the effects of drought in affected areas in order to support poverty reduction and environmental sustainability"</p> <p>The GM offers strategic advisory services to developing countries on how to increase investments in sustainable land management (SLM). http://www.unccd.int/en/about-the-convention/The-Global-Mechanism/Pages/default.aspx</p>
Food and Agriculture Organization of the United Nations (FAO) & the Forest and Landscape Restoration Mechanism (FLR Mechanism) & Land Degradation Assessment in Drylands (LADA) & Great Green Wall for the Sahara and Sahel Initiative (GGWSSI) & Action Against Desertification	<p>FAO's http://www.fao.org/ mandate is to support its members in their efforts to ensure that people have regular access to enough high-quality food to lead active, healthy lives.</p> <p>The FLR Mechanism facilitates a process in selected countries for improving the enabling environment, institutional arrangements, organizational and technical capacity and other concerns related to designing, planning and implementing a large scale and comprehensive FLR programme http://www.fao.org/forestry/flrm/en/ .</p> <p>The LADA project assessed the status, causes and impact of land degradation in drylands in order to detect hot spots and identify remedial measures. http://www.fao.org/nr/lada/</p> <p>The GGWSSI is a pan-African proposal to "green" the continent from west to east to battle desertification. It aims at tackling poverty and the degradation of soils in the Sahel-Saharan region, focusing on a strip of land of 15 km (9 mi) wide and 7,100 km (4,400 mi) long from Dakar to Djibouti. http://www.fao.org/partnerships/great-green-wall/great-green-wall-home/en/ ; http://www.greatgreenwallinitiative.org/</p> <p>Action Against Desertification is an initiative of the African, Caribbean and Pacific Group of States to restore drylands and degraded lands in Africa, the Caribbean and the Pacific to tackle the detrimental social, economic and environmental impact of land degradation and desertification. It is implemented by FAO and partners with funding from the European Union under the framework of the 10th European Development Fund (EDF). http://www.fao.org/in-action/action-against-desertification/en/</p>
Secretariat of the Convention on Biological Diversity & the Forest Ecosystem Restoration Initiative (FERI) & the Ecosystem Approach	<p>The Convention on Biological Diversity https://www.cbd.int was inspired by the world community's growing commitment to sustainable development. The three objectives of the Convention are the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising from the use of genetic resources.</p> <p>The Forest Ecosystem Restoration Initiative (FERI) is supported by the Korea Forest Service (KFS) of the Republic of Korea, and implemented by the CBD Secretariat. FERI aims to support ecosystem restoration activities under the Convention in line with decisions XI/16, XII/19, X/2 and other relevant initiatives, to contribute to the achievement of Aichi Biodiversity Targets 5, 14 and 15 through direct support and capacity building for developing country Parties.</p> <p>The ecosystem approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. Application of the ecosystem approach will help to reach a balance of the three objectives of the Convention. https://www.cbd.int/ecosystem/</p>
The Ramsar Convention	The Convention on Wetlands of International Importance, called the Ramsar Convention,

on Wetlands	http://www.ramsar.org/ is the intergovernmental treaty that provides the framework for the conservation and wise use of wetlands and their resources.
The Global Environment Facility	<p>The Global Environment Facility (GEF) was established on the eve of the 1992 Rio Earth Summit, to help tackle our planet's most pressing environmental problems. Since then, the GEF has provided \$14.5 billion in grants and mobilized \$75.4 billion in additional financing for almost 4,000 projects. The GEF has become an international partnership of 183 countries, international institutions, civil society organizations, and private sector to address global environmental issues.</p> <p>https://www.thegef.org/gef/home</p>
Center for International Forestry Research (CIFOR)	<p>CIFOR. http://www.cifor.org/ is a non-profit, scientific facility that conducts research on the most pressing challenges of forest and landscape management around the world. Using a global, multidisciplinary approach, we aim to improve human well-being, protect the environment, and increase equity. To do so, we help policymakers, practitioners and communities make decisions based on solid science about how they use and manage their forests and landscapes.</p>
International Union for Conservation of Nature (IUCN)	<p>IUCN helps the world find pragmatic solutions to our most pressing environment and development challenges. Their work focuses on valuing and conserving nature, ensuring effective and equitable governance of its use, and deploying nature-based solutions to global challenges in climate, food and development. IUCN supports scientific research, manages field projects all over the world, and brings governments, NGOs, the UN and companies together to develop policy, laws and best practice. IUCN has six Commissions uniting 10,000 volunteer experts from a range of disciplines. They assess the state of the world's natural resources and provide the Union with sound know-how and policy advice on conservation issues. The Commission on Ecosystem Management has a thematic group on Ecosystem Restoration.</p>
World Resources Institute (WRI)	<p>WRI's http://www.wri.org/ mission is to move human society to live in ways that protect Earth's environment and its capacity to provide for the needs and aspirations of current and future generations.</p>
Restoration Opportunities Assessment Methodology (ROAM) & The Restoration Diagnostic	<p>The ROAM, produced by IUCN and WRI, provides a flexible and affordable framework approach for countries to rapidly identify and analyse forest landscape restoration (FLR) potential and locate specific areas of opportunity at a national or sub-national level.</p> <p>https://www.iucn.org/about/work/programmes/forest/fp_our_work/fp_our_work_thematic/fp_our_work_flr/approach_to_forest_landscape_restoration/restoration_opportunities_assessment_methodology/</p> <p>WRI has developed the Restoration Diagnostic: A Method for Developing Forest Landscape Restoration Strategies by Rapidly Assessing the status of Key Success Factors. http://www.wri.org/publication/restoration-diagnostic</p>
World Agroforestry Centre (ICRAF)	<p>The World Agroforestry Centre (ICRAF) http://www.worldagroforestry.org is a CGIAR Consortium Research Centre. The Centre's vision is a rural transformation throughout the tropics as smallholder households increase their use of trees in agricultural landscapes to improve their food security, nutrition security, income, health, shelter, social cohesion, energy resources and environmental sustainability.</p>
The Global Partnership on Forest and Landscape Restoration (GPFLR)	<p>The GPFLR http://www.forestlandscaperestoration.org/ is a proactive network that unites governments, organisations, communities and individuals with a common goal: restoring the world's degraded and deforested lands. The Partnership was initiated with the purpose of catalyzing and reinforcing a network of diverse examples of restoration of forests and degraded lands that deliver benefits to local communities and to nature, and fulfil international commitments on forests.</p>

& the Bonn Challenge	Designed as an implementation platform for several existing international commitments, the Bonn Challenge is a global aspiration to restore 150 million hectares of degraded and deforested lands by 2020. http://www.forestlandscaperestoration.org/topic/bonn-challenge
International Model Forest Network (IMFN)	The IMFN http://www.imfn.net/international-model-forest-network has been implements a participatory, landscape-level approach to the sustainable management of natural resources. The approach offers an effective and flexible process that creates broad partnerships and represents the environmental, social and economic forces at play on the landscape. The IMFN includes more than 60 large scale landscapes in six regional networks covering 84 million hectares in 31 countries.
United Nations University (UNU) – Land Restoration Training Programme	The mission of UNU-LRT is to train specialists from developing countries to combat land degradation and restore degraded land, and to assist strengthening institutional capacity and gender equality in the field of land restoration and sustainable land management in developing countries. http://www.unulrt.is/
The Restoration Initiative (TRI)	TRI is a program to restore and maintain degraded and deforested landscapes at scale. It has been developed for consideration by the GEF and other donors through close collaboration between IUCN (as lead), FAO and UNEP. Ten partnering countries: Cameroon, Central African Republic, China, Democratic Republic of Congo, Guinea-Bissau, Kenya, Myanmar, Pakistan, Sao Tome & Principe, Tanzania. Additional interested countries will be welcomed to request joining in future. http://www.forestlandscaperestoration.org/sites/default/files/resource/2015-11-24_tri_flyer_print_final.pdf
The Global Restoration Initiative	Under WRI, http://www.wri.org/ the Global Restoration Initiative works with governments and international partners to inspire, enable and implement restoration on degraded landscapes, returning them to economic and environmental productivity. http://www.wri.org/our-work/project/global-restoration-initiative
Botanic Gardens Conservation International (BGCI) & the Ecological Restoration Alliance of Botanic Gardens	BGCI is a membership organisation representing a network of 500 botanic gardens in more than 100 countries, including the largest and most influential gardens in the sector. BGCI https://www.bgci.org/ aims to collect, conserve, characterise and cultivate samples from all of the world's plants as an insurance policy against their extinction in the wild and as a source of plant material for human innovation, adaptation and resilience. BGCI responded to Aichi Biodiversity Target 15 by forming the Ecological Restoration Alliance of Botanic Gardens (ERA) http://www.erabg.org/index/ with the objective of sharing their skills, resources and plant materials to scale up restoration activities around the world.
United Nations Forum on Forests	UNFF http://www.un.org/esa/forests/ is a subsidiary body with the main objective to promote "... the management, conservation and sustainable development of all types of forests and to strengthen long-term political commitment to this end..." based on the Rio Declaration, the Forest Principles, Chapter 11 of Agenda 21 and the outcome of the IPF/IFF Processes and other key milestones of international forest policy.
BirdLife International & The Caring for Coasts Initiative	BirdLife is widely recognised as the world leader in bird conservation. Rigorous science informed by practical feedback from projects on the ground in important sites and habitats enables us to implement successful conservation programmes for birds and all nature. http://www.birdlife.org/ The vision of the Caring for Coasts Initiative is that global coastal wetlands are protected and restored for the benefits they bring in disaster risk reduction, maintaining local livelihood, biodiversity conservation, climate change resilience, blue carbon source, and overall sustainable development. http://www.birdlife.org/content/caring-coasts-initiative
Bioversity International	Bioversity International http://www.bioversityinternational.org/ is a global research-for-development organization with a vision – that agricultural biodiversity nourishes people

	and sustains the planet. They deliver scientific evidence, management practices and policy options to use and safeguard agricultural and tree biodiversity to attain sustainable global food and nutrition security.
International Tropical Timber Organization (ITTO)	ITTO http://www.itto.int/ formulates policies relevant to its objectives and assists members to implement those policies through a programme of pre-projects (or scoping studies), projects and other activities.
UNFCCC & The New York Declaration on Forests & The Nansen Initiative	UNFCCC Advisory Group on climate change and human mobility: includes measures to strengthen the resilience of climate vulnerable populations to enable them to remain where they live. More than 130 governments, companies, civil society and indigenous peoples endorsed the New York Declaration on Forests in 2014, pledging to cut the loss of forests in half by 2020 and, for the first time, to end forest loss a decade later in 2030. http://newsroom.unfccc.int/nature-s-role/un-climate-summit-forests/ The Nansen Initiative Agenda for the Protection of Cross-border Displaced Persons in the Context of Disasters and Climate Change: a state-led process, signed by 114 delegations in October 2015. It includes disaster risk reduction, and management, climate change adaptation, and development. Its findings and recommendations have been fed into the UNFCCC process. https://www.nanseninitiative.org/secretariat/
United Nations Office for Disaster Risk Reduction (UNISDR) & Sendai Framework for Disaster Risk Reduction	UNISDR's http://www.unisdr.org/ mandate has been defined by a number of UNGA Resolutions, the most notable of which is "to serve as the focal point in the United Nations system for the coordination of disaster reduction and to ensure synergies among the disaster reduction activities of the United Nations system and regional organizations and activities in socio-economic and humanitarian fields" (Resolution 56/195). The Sendai Framework for Disaster Risk Reduction 2015-2030 (Sendai Framework) is the first major agreement of the post-2015 development agenda, with seven targets and four priorities for action. It was endorsed by the UN General Assembly following the 2015 Third UN World Conference on Disaster Risk Reduction (WCDRR). http://www.unisdr.org/we/coordinate/sendai-framework
Asia-Pacific Rainforest Recovery Plan	Australia has established a secretariat to work with all regional stakeholders to further develop an Asia-Pacific Rainforest Recovery Plan. The Department has undertaken extensive engagement with regional governments to build support for the Plan http://www.environment.gov.au/climate-change/rainforest-recovery/asia-pacific-rainforest-recovery-plan
WRI, CATIE, CIAT, IUCN Initiative 20x20	Initiative 20x20 is a country-led effort to bring 20 million hectares of land in Latin America and the Caribbean into restoration by 2020. The initiative supports the Bonn Challenge and the New York Declaration on Forests. It is supported by WRI, in association with CATIE, CIAT, and IUCN. http://www.wri.org/our-work/project/initiative-20x20
Pela restauração da Mata Atlântica (PACTO)	Articulates and integrates stakeholders in the restoration of the Brazilian Atlantic Forest, inducing large-scale actions and results, with environmental, social and economic benefits. http://www.pactomataatlantica.org.br/
The New Partnership for Africa's Development (NEPAD) & TerrAfrica	NEPAD http://www.nepad.org/ is the implementing agency of the African Union that facilitates and coordinates the development of continent-wide programmes and projects, mobilises resources and engages the global community, regional economic communities and member states in their implementation. TerrAfrica is driven by the leadership and commitments of Sub-Saharan African countries. The Executive Committee consists of Sub-Saharan African governments, NEPAD, the UNCCD Secretariat, the UNCCD's GM, the FAO, IFAD, UNDP, the

	AFDB, the European Commission, bilateral donors, civil society representatives, and the World Bank. http://terrafrica.org/
World Bank, WRI, the NEPAD Agency, and Germany's BMZ African Resilient Landscapes Initiative (ARLI) & AFR100	ARLI will be implemented through forest and ecosystem restoration, biodiversity conservation, climate smart agriculture, and rangeland management. The African Forest Landscape Restoration Initiative (AFR100) is a country-led effort to bring 100 million hectares of land in Africa into restoration by 2030. The initiative—launched formally at COP 21 in Paris— will support the Bonn Challenge.
The Landscapes for People, Food and Nature Initiative (LPFN)	LPFN is an international collaborative initiative of knowledge sharing, dialogue and action to support integrated landscape management in order to achieve three simultaneous goals: improved food production, ecosystem conservation, and sustainable livelihoods. http://peoplefoodandnature.org/

Table 2. Examples of available practical guidance on ecosystem restoration at generic level and databases.

Country/ organization	Details
Canada	Ecological Restoration Guidelines for British Columbia http://www.env.gov.bc.ca/fia/documents/restorationguidelines.pdf
Japan	Nature restoration policy and project in Japan http://www.env.go.jp/en/nature/npr/nrp_japan/index.html
New Zealand	Guidelines to the Development and Monitoring of Ecological Restoration Programmes http://www.doc.govt.nz/upload/documents/science-and-technical/docts07.pdf
Society for Ecological Restoration	The SER has two foundation documents for the development of practical policy and planning guidance on ecosystem restoration. SER International Primer: http://www.ser.org/content/ecological_restoration_primer.asp SER International Guidelines for Developing and Managing Ecological Restoration Projects: http://www.ser.org/content/guidelines_ecological_restoration.asp . SER also circulated a note on ecological restoration to SBSTTA-14 https://www.cbd.int/doc/meetings/sbstta/sbstta-14/information/sbstta-14-inf-15-en.pdf and SBSTTA 20 https://www.cbd.int/doc/meetings/sbstta/sbstta-20/information/sbstta-20-inf-36-en.pdf SER's Global Restoration Network (GRN) hosts a database with over 200 restoration case studies. http://www.globalrestorationnetwork.org/database/ Part 1 of the SER Restoration Reader -the foundation volumes provide orientation, scope, scientific and philosophical underpinnings of restoration. http://www.islandpress.org/ser/index.html
Bioversity	Genetic considerations in ecosystem restoration using native tree species. Evert Thomas, Riina Jalonen, Judy Loo, David Boshier, Leonardo Gallo, Stephen Cavers, Sándor Bordács, Paul Smith, Michele Bozzano. http://www.sciencedirect.com/science/article/pii/S0378112714004356
SCBD	The Ecosystem Approach. Operational guidance, principles, case studies, and sourcebook for application of the ecosystem approach are relevant in planning and implementing ecosystem restoration. (https://www.cbd.int/ecosystem/) UNEP/CBD/COP/11/INF/17, 18 and 19, compiled by SER, provided generally available guidance, guidelines, tools, technologies, and definitions and key terms on ecosystem restoration. <i>Available guidance and guidelines on ecosystem restoration</i> - provided both general and ecosystem-specific guidance and guidelines. UNEP/CBD/COP/11/INF/17. (https://www.cbd.int/doc/meetings/cop/cop-11/information/cop-11-inf-17-en.pdf) <i>Available tools and technologies on ecosystem restoration</i> – included lessons learned, and experiences used at different spatial scales and for specific ecosystems. UNEP/CBD/COP/11/INF/18 (https://www.cbd.int/doc/meetings/cop/cop-11/information/cop-11-inf-18-en.pdf)

Country/ organization	Details
	<p>11/information/cop-11-inf-18-en.pdf)</p> <p><i>Most used definitions/descriptions of key terms related to ecosystem restoration.</i> UNEP/CBD/COP/11/INF/19 (https://www.cbd.int/doc/meetings/cop/cop-11/information/cop-11-inf-19-en.pdf)</p> <p>UNEP/CBD/SBSTTA/15/4 outlines “Ways and means to support ecosystem restoration” and elements for a communication strategy for the promotion of ecosystem restoration (https://www.cbd.int/doc/meetings/sbstta/sbstta-15/official/sbstta-15-04-en.pdf).</p> <p>UNEP/CBD/SBSTTA/15/13 provides a report on how to improve sustainable use of biodiversity in a landscape perspective including guiding principles. https://www.cbd.int/doc/meetings/sbstta/sbstta-15/official/sbstta-15-13-en.pdf</p> <p>UNEP/CBD/SBSTTA/17/2/Add.4, “<i>The identification of scientific and technical needs for the attainment of Targets 14 and 15 under Strategic Goal D of the Strategic Plan for Biodiversity 2011-2020</i>” presented policy support tools and methodologies to help achieve the targets, their application, obstacles to their use, and operational indicators. https://www.cbd.int/doc/meetings/sbstta/sbstta-17/official/sbstta-17-02-add4-en.pdf</p> <p>Quick Guides on each Aichi Biodiversity Target explain the target, implications, and guiding questions for setting national targets, actions and milestones, possible indicators, and resources. https://www.cbd.int/nbsap/training/quick-guides/</p> <p>Global Biodiversity Outlook 4 https://www.cbd.int/gbo4/ (see Targets 14 and 15) and CBD Technical Series 81, “Plant Conservation Report 2014: A review of progress in implementation of the Global Strategy for Plant Conservation 2011-2020” https://www.cbd.int/doc/publications/cbd-ts-81-en.pdf (see Targets 4 and 8) provide mid-term reviews and conclusions on implementation of the Strategic Plan for Biodiversity 2011-2020 and the Global Strategy for Plan Conservation.</p> <p>UNEP/CBD/COP/12/INF/18 https://www.cbd.int/doc/?meeting=cop-12 provided a “Review of global assessments of land and ecosystem degradation and their relevance in achieving the land-based Aichi Biodiversity Targets” (WRI, PBL, U. of Western Australia, ISRIC–World Soil Information)</p>

Table 3. Examples of available practical guidance on restoration of specific ecosystems, and sectors.

Ecosystems and sectors	Details
Deserts, drylands, prairies and savannas	<p>FAO: “Global guidelines for the restoration of degraded forests and landscapes in drylands”. 2015. http://www.fao.org/3/a-i5036e.pdf</p> <p>USDA Forest Service Ecosystem Restoration: A Framework for Restoring and Maintaining the National Forests and Grasslands. http://www.fs.fed.us/restoration/documents/RestFramework_final_010606.pdf</p> <p>SER: <i>A Guide for Desert and Dryland Restoration: New Hope for Arid Lands</i>. 2007. Offers practical, field-tested solutions to the critical problem of dryland degradation and desertification. http://ser.org/resources/resources-detail-view/a-guide-for-desert-and-dryland-restoration-new-hope-for-arid-lands</p> <p>SER: <i>The Tallgrass Restoration Handbook</i>. 2005. A manual on the art and science of prairie restoration and the application of that knowledge to restoration projects throughout the world. http://ser.org/resources/resources-detail-view/the-tallgrass-restoration-handbook-for-prairies-savannas-and-woodlands</p>
Forests and woodlands	<p>The Global Partnership on Forest Landscape Restoration (GPFLR) with WRI, South Dakota State University, and IUCN has produced an updated map showing restoration potentials at global level</p>

Ecosystems and sectors	Details
	<p>https://www.iucn.org/about/work/programmes/forest/fp_our_work/fp_our_work_thematic/fp_our_work_flr/approach_to_forest_landscape_restoration/global_restoration_opportunity/ . The GPFLR and its partners are also developing a methodology and tools to help identify where degraded lands are located in a given country, estimate their extent, and quantify what benefits their restoration could bring, to whom, and at what cost.</p> <p>The GPFLR has also produced a number of guidance-related documents http://www.forestlandscaperestoration.org/resources</p> <p>ITTO with CIFOR, FAO, IUCN and WWF International, issued guidelines for the restoration, management and rehabilitation of degraded and secondary tropical forests. http://www.itto.int/direct/topics/topics_pdf_download/topics_id=1540000&no=1&disp=inline</p> <p>ITTO: http://www.itto.int/</p> <ul style="list-style-type: none"> -Restoring forest landscapes: An introduction to the art and science of forest landscape restoration -Assessing the ITTO Guidelines for the Restoration, Management and Rehabilitation of Degraded Secondary Tropical Forests. ITTO Technical Series No 23 - ITTO/IUCN guidelines for the conservation and sustainable use of biodiversity in tropical timber production forests - ITTO guidelines on the conservation of biological diversity in tropical production forests <p>FAO: Sustainable Forest Management toolkit: the Forest Restoration and Rehabilitation Module, is intended for people involved in afforestation and reforestation programmes. It establishes the difference between forest restoration and rehabilitation and sets out the main steps involved in both. The module provides basic and more detailed information on forest restoration and rehabilitation, as well as links to key tools and case studies of effective restoration and rehabilitation efforts. http://www.fao.org/sustainable-forest-management/toolbox/modules/forest-restoration-and-rehabilitation/basic-knowledge/en/</p> <p>FAO & Global Mechanism of the UNCCD: Sustainable financing for forest and landscape restoration: Opportunities, challenges and the way forward. http://www.fao.org/3/a-i5174e.pdf</p> <p>IUFRO: Forest Landscape Restoration as a Key Component of Climate Change Mitigation and Adaptation, (IUFRO World Series, Volume 34). http://www.iufro.org/publications/series/world-series/ and the Stoplight framework on how forest landscape restoration can contribute to climate change mitigation and adaptation. (http://www.iufro.org/download/file/18473/1304/flr-project-flyer_pdf/)</p> <p>Royal Botanic Gardens Kew. <i>Restoring Tropical Forests: A Practical Guide</i> is a user-friendly and globally relevant practical guide to restoring forests throughout the tropics. Based on the concepts, knowledge and innovative techniques developed at Chiang Mai University's Forest Restoration Research Unit, this book will enable substantial improvements in existing forest restoration projects and provide a key resource to enable new ones. Through ERABG http://www.erabg.org/protocols/</p> <p>SCBD, Germany, Republic of Korea: Leveraging public programmes with socio-economic and development objectives to support conservation and restoration of ecosystems: lessons learned from the Republic of Korea's National Reforestation Programme: https://www.cbd.int/ecore restoration/doc/Korean-Study_Final-Version-20150106.pdf</p> <p>SCBD: CBD Technical Series 43 "A synthesis of the biodiversity/resilience/stability relationship in forest ecosystems" provides ecological principles that can be employed to maintain and enhance long term forest resilience, especially under climate change https://www.cbd.int/doc/publications/cbd-ts-43-en.pdf</p> <p>UNFCCC: The Cancun Agreements: Outcome of the Work of the Ad Hoc Working Group on Long-Term Cooperative Action Under the Convention, Decision 1/CP.16, FCCC/CP/2010/7/Add.1. Appendix I: Guidance and safeguards for policy approaches and positive incentives on issues</p>

Ecosystems and sectors	Details
	<p>relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries. http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=2</p> <p>IUCN: IUCN takes a facilitative approach to Forest Landscape Restoration (FLR), working with partners to gather knowledge, develop and package tools, build capacity, and support policy-makers, practitioners, researchers and landowners to restore degraded and deforested lands around the world. https://www.iucn.org/about/work/programmes/forest/fp_our_work/fp_our_work_thematic/fp_our_work_flr/approach_to_forest_landscape_restoration/</p> <p>IUCN: Knowledge and Tools for Forest Landscape Restoration https://www.iucn.org/about/work/programmes/forest/fp_our_work/fp_our_work_thematic/fp_our_work_flr/flr_projects_partnership/knowledge_for_flr/</p> <p>IUCN has launched a Forest Landscape Restoration (FLR) Hub for Eastern and Southern Africa https://www.iucn.org/about/work/programmes/forest/fp_our_work/fp_our_work_thematic/fp_our_work_flr/?22601/IUCN-launches-regional-forest-landscape-restoration-hub-in-kigali-rwanda</p>
Coastal & marine	<p>USA: Systematic Approach to Coastal Ecosystem Restoration NOAA http://chapter.ser.org/northwest/files/2012/08/NOAA_systematic_coastal_restoration.pdf ; and restoration monitoring guidance https://coastalscience.noaa.gov/research/scem/restoration-monitoring</p> <p>The Mangrove Action Project: http://mangroveactionproject.org/ provides resources on planning implementing and monitoring mangrove and wetland restoration</p> <p>The Mangroves for the Future project is a IUCN partnership-based initiative promoting investments in coastal ecosystems that support sustainable development. It also provides an online compendium of coastal system management tools that include support for ecosystem management and restoration https://www.iucn.org/about/union/secretariat/offices/asia/what_we_do/mangroves_for_the_future/</p> <p>SER. <i>Tidal Marsh Restoration</i> provides the scientific foundation and practical guidance necessary for coastal zone stewards to initiate salt marsh tidal restoration programs. http://ser.org/resources/resources-detail-view/tidal-marsh-restoration</p> <p>SCBD: CBD Technical Series No. 76 https://www.cbd.int/doc/publications/cbd-ts-76-en.pdf “Integrated Coastal Management for the Achievement of the Aichi Biodiversity Targets: Practical Guidance for Implementation Based on Experience and Lessons Learned from Coastal and Ocean Governance in the Seas of East Asia” provides a tested model of integrated marine and coastal area management including climate change adaptation, disaster risk reduction, habitat restoration and management, and sustainable fisheries and livelihoods.</p> <p>Wetlands International. <i>Best Practice Guidelines on Restoration of Mangroves in Tsunami Affected Areas</i> https://www.wetlands.org/publications/best-practice-guidelines-on-restoration-of-mangroves-in-tsunami-affected-areas/</p> <p>Reef Restoration Concepts and Guidelines: making sensible management choices in the face of uncertainty. 2007. (Edwards and Gomez). Coral Reef Targeted Research & Capacity Building for Management Programme. Australia. http://reefresilience.org/pdf/Reef_Restoration.pdf</p>
Peatlands	<p>Global Peatland Restoration Manual. Martin Schumann & Hans Joosten of the Institute of Botany and Landscape Ecology, Greifswald University, present a science-based and practical guide to peatland restoration for policy makers and site managers. http://www.imcg.net/media/download_gallery/books/gprm_01.pdf</p>

Ecosystems and sectors	Details
	<p>Peatlands and Uplands Biodiversity Delivery Group: Guidelines for Peatland Restoration. 2010. (Ireland) http://www.qpani.org/documents/PeatlandRestorationguidelinesfinal.pdf</p> <p>Canada. Peatland Restoration Guide, second edition. Canadian Sphagnum Peat Moss Association and New Brunswick D. of Natural Resources and Energy. Quinty, F. and L. Rochefort, 2003. http://www.gret-perg.ulaval.ca/uploads/tx_centrecherche/Peatland_Restoration_guide_2ndEd_01.pdf</p>
Rivers and watersheds	<p>The Center for Watershed Protection developed from 2003 to 2008 an eleven-manual series on practical techniques to restore urban watersheds. http://www.cwp.org/categoryblog/92-urban-subwatershed-restoration-manual-series.html; https://issuu.com/alleycreek/docs/urban_subwatershed_restoration_manual_series_manua/1</p> <p>The River Restoration Centre offers a Manual of River Restoration Techniques to assist practitioners. http://www.therrc.co.uk/manual-river-restoration-techniques</p> <p>SER: <i>River Futures: an Integrative Scientific Approach to River Repair</i>. 2008. Discusses the emergence of this new era of river repair and documents a comprehensive biophysical framework for river science and management. http://ser.org/resources/resources-detail-view/river-futures-an-integrative-scientific-approach-to-river-repair</p>
Wetlands	<p>United States Environment Protection Agency: An Introduction to Wetland Restoration, Creation, and Enhancement http://www.epa.gov/owow/wetlands/restore/finalinfo.html</p> <p>The Ramsar Convention: Restoration as an element of national planning for wetland conservation and wise use (Resolution VII.17 http://www.ramsar.org/document/resolution-vii17-restoration-as-an-element-of-national-planning-for-wetland-conservation; Resolution VIII.6 Principles and Guidelines for Wetland Restoration http://www.ramsar.org/document/principles-and-guidelines-for-wetland-restoration; Resolution XI.13 An Integrated Framework for linking wetland conservation and wise use with poverty eradication http://www.ramsar.org/document/resolution-xi13-an-integrated-framework-for-linking-wetland-conservation-and-wise-use-with. Briefing Note “The benefits of wetland restoration” http://www.ramsar.org/sites/default/files/documents/library/bn4-en.pdf provides advice on how to prioritize and implement the adopted Ramsar principles and guidelines on wetland restoration.</p> <p>Wetlands International. <i>Restoration of Lake Ecosystems: a Holistic Approach</i>. The handbook is primarily developed to address the restoration of wetlands in Central and Eastern Europe and, therefore, encompasses mostly case studies from the temperate zone. https://www.wetlands.org/publications/restoration-of-lake-ecosystems-a-holistic-approach/; A Bibliography of Wetland Creation and Restoration Literature. 1996. https://www.wetlands.org/publications/a-bibliography-of-wetland-creation-and-restoration-literature/</p>
Protected Areas	<p>Canada: <i>Principles and Guidelines for Ecological Restoration in Canada's Protected Natural Areas</i> http://www.pc.gc.ca/docs/pc/guide/resteco/index_e.asp; Parks Canada also hosts a compendium of case studies illustrating a broad range of restoration challenges and solutions. http://www.pc.gc.ca/eng/progs/np-pn/re-er/ec-cs/index.aspx</p> <p>US National Parks Service: <i>Guidance on Disturbed Land Restoration</i> provides the most common elements in restoration projects that include a physical component. http://www.nature.nps.gov/rm77/restore/programguide.cfm.</p> <p>IUCN: Ecological Restoration for Protected Areas - Principles, Guidelines and Best Practices. Best Practice Protected Area Guidelines Series No. 18 http://www.iucn.org/about/work/programmes/gpap_home/gpap_capacity2/gpap_bpg/?10734/Ecological-Restoration-for-Protected-Areas</p>
Transport networks and Habitat networks	<p>Germany. Landscape planning. Nationwide Priorities for Re-Linking Ecosystems: Overcoming Road-Related Barriers (http://www.bfn.de/0312_landsch_planung.html). The compendium shows how and where to defragment the most important areas of habitat networks which are fragmented by road networks.</p>

Ecosystems and sectors	Details
	https://www.bfn.de/fileadmin/MDB/documents/themen/eingriffsregelung/Nationalwide%20Priorities%20for%20Re-Linking%20Ecosystems.pdf
Agriculture	<p>SER: <i>Old Fields</i>, published in 2011, brings together leading experts from around the world to synthesize past and current work on old fields, providing an up-to-date perspective on the ecological dynamics of abandoned land. http://ser.org/resources/resources-detail-view/old-fields-dynamics-and-restoration-of-abandoned-farmland</p> <p>Ecological restoration of farmland: progress and prospects (Wade, Gurr and Wratten). 2007. Sustainable agricultural practices in conjunction with ecological restoration methods can reduce the detrimental effects of agriculture. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2610112/</p>
Ex situ	<p>SER: <i>Ex Situ Plant Conservation: Supporting Species Survival in the Wild</i>. 2004. Addresses integrated plant conservation strategies and examines the scientific, technical, and strategic bases of the <i>ex situ</i> approach. http://ser.org/resources/resources-detail-view/ex-situ-plant-conservation-supporting-species-survival-in-the-wild</p>
Business	<p>IUCN: Nature Resilience: Ecological Restoration by Partners in Business for Next Generations http://data.iucn.org/dbtw-wpd/edocs/2012-068.pdf</p>
Mining	<p>Canada. Quebec. Guidelines for preparing a mining site rehabilitation plan and general mining site rehabilitation requirements https://mern.gouv.qc.ca/english/publications/mines/environment/guianmin.pdf; Mine Site Reclamation Guidelines For The Northwest Territories http://www.aadnc-aandc.gc.ca/eng/1100100024558/1100100024569 ; Guide for Surface Coal Mine Reclamation Plans https://www.novascotia.ca/nse/ea/docs/EA.Guide-SurfaceCoalMineReclamation.pdf ; The Policy Framework in Canada for Mine Closure and Management Liabilities http://www.abandoned-mines.org/pdfs/PolicyFrameworkCanforMinClosureandMgmtLiabilities.pdf</p> <p>South Africa: Guidelines for the rehabilitation of mined land. https://commondatastorage.googleapis.com/comsa/Guidelines%20for%20the%20rehabilitation%20of%20mined%20land%20Nov07.pdf</p> <p>US. Virginia: How to Restore Forests on Surface-Mined Land. https://pubs.ext.vt.edu/460/460-123/460-123_pdf.pdf</p>