UNECE Food and Agriculture Organization of the United Nations

POLICY BRIEF

CRITERIA AND INDICATORS - AN UNIVERSAL POLICY TOOL FOR SUSTAINABLE FOREST MANAGEMENT

SUMMARY

Almost 30 years after their introduction, criteria and indicators for sustainable forest management (C&I for SFM) still rank high in public and political interest. They are meanwhile an increasingly common policy tool to implement sustainable forest management and to define related targets, which should improve monitoring, reporting and assessment of key aspects of sustainable forest management (SFM).

INTRODUCTION: SHORT HISTORY OF C&I FOR SFM

Agenda 21, the programme of action for the 21st century, adopted at the United Nations Conference on Environment and Development in Rio de Janeiro in 1992, outlined an action plan for sustainable development at global, regional, national and local levels. This presented a challenge to measure sustainability. Chapter 40.4 of Agenda 21 proposed using indicators of sustainable development to provide a foundation for decision-making. The decades that followed saw the development of indicators covering a range of topics, from the global to the local level.

Since 1992, the evolution of national-level C&I for SFM has supported monitoring and reporting of the state of forests and forestry. Their use has extended to also assessing the sustainability of forest management. C&I guide forest sector development, identifying targets to release the full potential of sustainable forest management. They have broadened the scope of the forest sector to include social, economic, and governance, as well as ecological aspects. Criteria for SFM at local, national, regional and international levels are tending to align, but sets of indicators for SFM range from the more generic at international and national levels, to the more context-specific at the local level (Linser et al. 2018 a and b; UNECE/FAO, 2019).

WHAT IS SFM?

Sustainable forest management (SFM) involves looking after forests in accordance with the UN principles of sustainable development. Widely used definitions include:

“The stewardship and use of forests and forest lands in such a way, and at a rate, that maintains their biodiversity, productivity, regeneration capacity, vitality and their potential to fulfil now, and in the future, relevant ecological, economic and social functions, at local, national, and global levels, and that does not cause damage to other ecosystems” (MCPFE, 1993).

“A dynamic and evolving concept [that] aims to maintain and enhance the economic, social and environmental values of all types of forests, for the benefit of present and future generations” (UN, 2018).

The definitions are clear that, while SFM will change over time, its purpose at a minimum is to maintain all forest values in perpetuity.

WHAT ARE C&I FOR SFM?

Criteria and indicators are tools used to define, guide, monitor and assess progress towards sustainable forest management (SFM) in a given context. Criteria and indicators (C&I) have emerged as a powerful tool in promoting SFM (FAO, 2015a). These are used in monitoring, evaluating and communicating progress towards more general targets formulated in the respective criteria (maintain…, enhance…) or towards specific targets (quantitative or qualitative) set for each indicator. The comprehensive information that C&I helps understanding and informs discussion about SFM. C&I for SFM operate at the global, regional, international, national, subnational, and even at forest management unit levels. C&I for SFM can be tailored to allow for differences within and between countries, regions or specific locations.

CRITERIA COVER **WHAT** IT IS IMPORTANT TO MEASURE

Broadly used definitions include:

"Criteria characterize or define the essential elements or set of conditions or processes by which sustainable forest management may be assessed" (MCPFE, 1998).

"Criteria define the essential elements against which sustainability is assessed, with due consideration paid to the productive, protective and social roles of forests and forest ecosystems. Each criterion relates to a key element of sustainability, and may be described by one or more indicators" (FAO, 2015a).

Thus, a criterion is a condition that should be met to confirm that forests are managed sustainably. This could be, for example maintenance, enhancement, protection or conservation of the essential elements of SFM.

INDICATORS COVER **HOW** TO MEASURE SFM

Indicators focus on aspects relevant within the respective criterion. Indicators may be quantitative or qualitative, thus respective figures are regularly monitored or descriptive information is surveyed focusing both on the status and changes of SFM. Commonly used definitions include:

"Indicators show changes over time for each criterion and demonstrate the progress made towards their specific objectives" (MCPFE, 1998).

"Indicators are parameters which can be measured and correspond to a particular criterion. They measure and help monitor the status and changes of forests in quantitative, qualitative and descriptive terms that reflect forest values as seen by those who defined each criterion" (FAO, 2015a).

"Sustainability indicators are science-based measures that provide a consistent approach to assess, monitor and report progress on SFM to a wide range of stakeholders and institutions, including governments, the private sector, non-governmental organizations, donor organizations, researchers and the public. Sustainability indicators can be useful to identify the changes in forest management practices required to maintain and improve healthy forests" (FAO, 2015b).

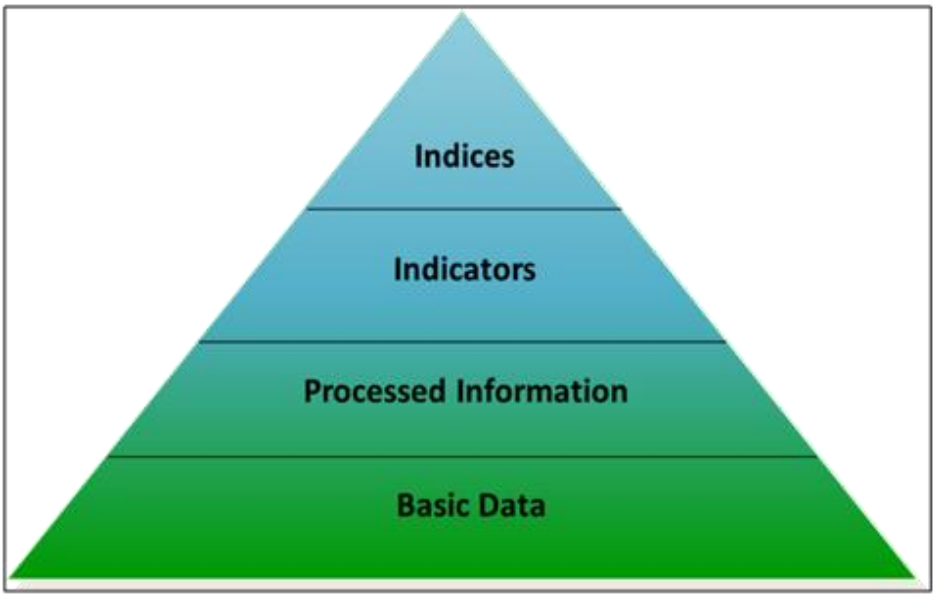
WHAT IS THE DIFFERENCE BETWEEN AN INDICATOR AND OTHER DATA?

Indicators reduce large quantities of data to a simpler form, retaining essential meaning for the questions that are being asked of the data or to be representative of the criteria they are aligned to. In short, an index or indicator is designed to simplify (Ott,1978).

The result is a graded information system (see figure 1):

- Basic data: derived at the locus of sampling or other measurement.
- Processed information: statistically processed and harmonized data.
- Indicator: one- or two-dimensional figure, like forest area per capita.
- Index: weighted, multidimensional aggregation with no unit, like the Human Development Index.

Figure 1: Data Pyramid.



Source: Adrianse, 1995.

WHY DO WE NEED C&I FOR SFM?

Indicators support decision-making. To implement the UN's 2030 Agenda for Sustainable Development, particularly its Sustainable Development Goals (SDG) and targets, SDG indicators are used to monitor progress, inform policy and ensure accountability of all stakeholders.

During the Rio process all UN Conventions developed international-level indicators to show progress in implementation. The Convention for Biological Diversity (CBD) has indicators to measure achievement against its 2020 Aichi Targets. The UN Framework Convention on Climate Change (UNFCCC) has indicators to report achievement against climate targets. The indicators of the UN Convention on Combating Desertification (UNCCD) provide information on progress towards achieving long-term objectives in areas affected by desertification, land degradation and drought. All these sets include some forest-related indicators.

In Europe, the FOREST EUROPE process (Ministerial Conference on the Protection of Forests in Europe) developed a set that has since been revised three times, to address emerging problems such as climate change, or new issues such as ecosystem services or the bioeconomy. With 34 quantitative and 11 qualitative indicators, the pan-European indicator set is the basis of the State of Europe's Forests reports and the national indicator sets of 23 European countries (Linser & Wolfslehner, 2021).

The Montréal Process Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests contain seven criteria and 54 indicators. The 12 member countries of the Montréal Process

use this set of criteria and indicators to prepare country reports on progress toward sustainable forest management and, for some countries, as the basis for domestic processes to monitor, assess and report progress towards sustainable forest management (The Montréal Process, 2015).

The reporting system of the European Commission (EC) is based on sets of indicators (e.g. social indicators, health indicators, Natura-2000 indicators) and is supported in EU environmental policy by the Core-Set of Indicators of the European Environment Agency (EEA), as well as other specific indicator sets of the EEA (Link).

In 2015, an EC ad hoc working group of the Standing Forestry Committee discussed EU indicators within the EU Forest Strategy, and adopted the pan-European set of C&I for SFM of the FOREST EUROPE process as sufficient for their purposes. However, the various EC Directorate Generals showed interest in key indicators for SFM and in subsets of forest-related indicators, e.g. for biodiversity, currently elaborated in the EuropaBON H2020 project.

Presently thresholds or targets assigned to the various indicators are of interest and are requested for comprehensive sustainability assessments (Onida, 2021).

In addition, the bioeconomy and related concepts play a central role in the EC's current political agenda. This area focuses among others on (bio)technology, intensified use of natural resources, reducing dependency on non-renewable resources, and preventing and adapting to climate change, all which can be already mapped by forest-related indicators (Wolfslehner et al., 2016). The EC Joint Research Centre recently developed a broad set of bioeconomy indicators, including forest-related indicators (Giuntoli et al., 2020).

The 100 EUROSTAT Sustainable Development Indicators are used to monitor and report progress towards the goals of the EU Sustainable Development Strategy and are structured along the 17 UN SDGs. They also contain forest-related indicators.

Indicators are strongly on the political agenda. The highly-developed forest indicators have the potential to inform other international, European or national indicator processes, such as sustainable bioeconomy, or biodiversity indicators. This is true also for the development of national forest indicators, which still tend to focus only on European or international reporting obligations.

LINKS TO SDGS

In 2015, the UN General Assembly approved the 2030 Agenda for Sustainable Development, which contains 17 Sustainable Development Goals (SDGs) and 169 targets to be achieved by all countries by 2020 or 2030. There are 231 unique indicators to assess progress against set targets.

Forests will play a major role in helping to realize the SDGs. Only two SDGs mention forests explicitly. SDG15, “Life on land”, targets sustainable forest management. SDG6, “Clean water and sanitation”, requests protection and restoration of forests in one of its targets. Despite this, 14 of the 17 SDGs have forest-related indicators or indicators with a forest component (Linser & Lier, 2020). The underlying data and information for these indicators, or parts of them, are based on the forest sector, underlining the cross-cutting nature of many forest-related indicators that extend beyond the forest sector, such as wood for energy or carbon indicators.

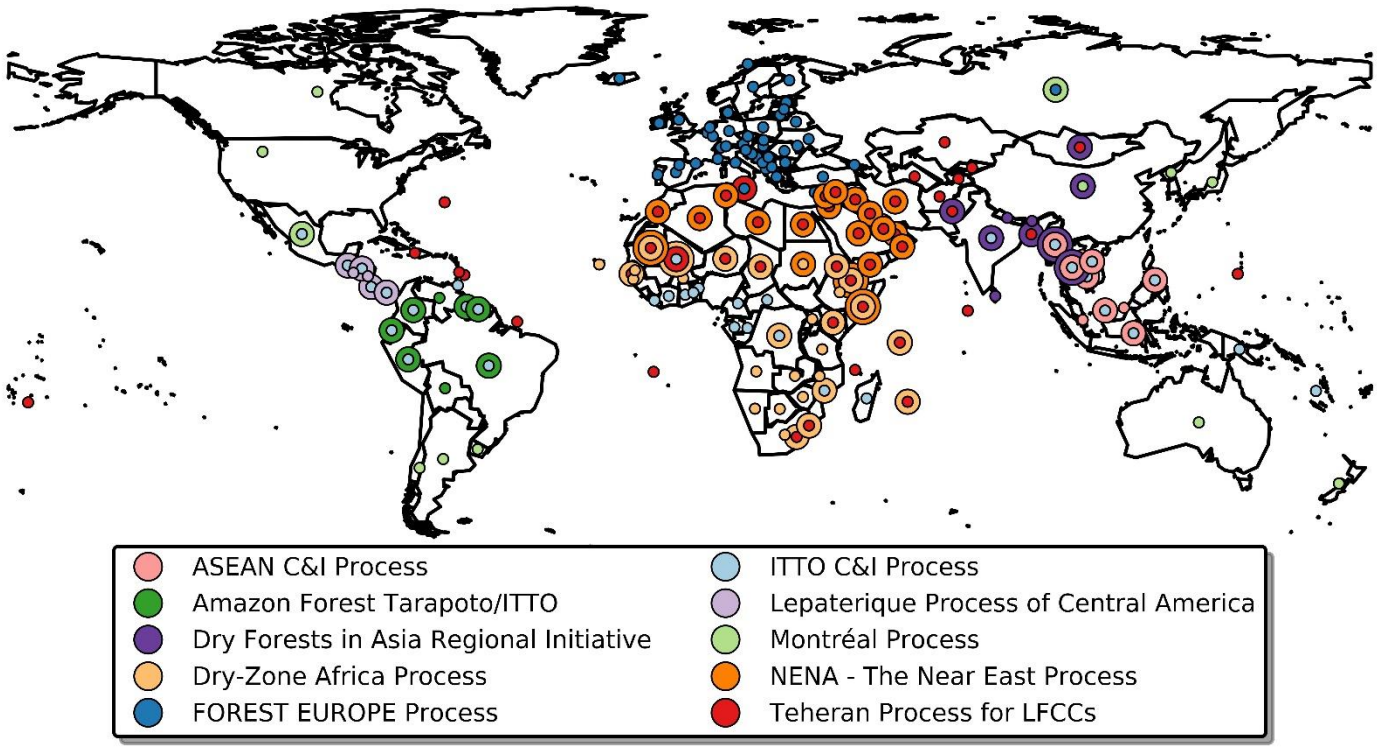
C&I FOR SFM PROCESSES

The forest sector pioneered the development and application of indicators to monitor progress against sustainability. In the 1990s, first indicator sets had already been developed for every world's region. By 2000, 171 countries were participating in 11 regional processes to develop C&I for SFM.

Today there are only six C&I for SFM processes, proactively coordinating and supporting their member countries (Linser et al., 2018a):

- The International Tropical Timber Organization's (ITTO) C&I for sustainable management of tropical forests (1986-ongoing).
- The Pan-European Forest Process on C&I for SFM (Forest Europe) (1990-ongoing).
- The Montréal Process on Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests (1993-ongoing).
- The Amazon Cooperation Treaty Organization (ACTO) Tarapoto/ITTO Process on C&I for the sustainability of Amazon forests (1995-ongoing).
- The Association of Southeast Asian Nations (ASEAN) C&I for the sustainable management of tropical forests in Southeast Asia (1998-ongoing).
- The Low-Forest-Cover-Countries Process (LFCC) (2000-ongoing).

Figure 2: Distribution of the member countries or countries involved in all regional and international C&I for SFM processes. Total of 171 countries. 52 countries participate in two processes. Six countries participate in three processes. Armenia, Azerbaijan, Guinea, Nigeria, North Korea, Paraguay and Uzbekistan do not participate in any process. ATO/ITTO is included in ITTO.



Source: Linser et al., 2018a.

BENEFITS OF HAVING A NATIONAL SET OF C&I FOR SFM

Many countries have developed national C&I sets, comprising some or all indicators from regional or international C&I processes, as well as indicators that are of importance nationally. A national C&I set for SFM takes account of national stakeholder values, common objectives, priorities, and goals. It should form the basis for evidence-based policy, decision-making and communication, which will assist in:

- Defining SFM within a national context.
- Revealing the multi-functionality of forests.
- Preparing forest development and forest management plans.
- Monitoring, assessing and periodic reporting of the state of countries' forests and forestry sector.
  - supporting reporting to government officials;
  - supporting interested stakeholders with basic information on forests;
  - communicating forestry issues to the general public, e.g. by press releases, brochures, infographics, public events, and modern social media;
  - facilitating international reporting obligations like those for UNECE/FAO, SDGs, FOREST EUROPE;
  - providing information and raising awareness on forest issues to forest-related sectors on e.g. biodiversity, bioeconomy, rural development, and nature protection;
- Strengthening the development or revision of forest legislation, forest policy or national forest programmes and monitoring and assessing their implementation.
- Providing incentives for practical sustainable forest management.
- Encouraging dialogue and communication on key forest sector issues within the forest sector, between the forest and other sectors as well as with society.
- Demonstrating how forests benefit society.

The core user groups of national, indicator-based data and information are governmental organizations, such as forest policy, bioeconomy, environmental or climate institutions as well as national accounting services, forest owners, forest owner interest groups, environmental organizations and the science community.

GUIDELINES FOR THE DEVELOPMENT OF NATIONAL C&I FOR SFM

In 2019, UNECE and FAO produced Guidelines for the Development of a Criteria and Indicator Set for SFM while supporting the development of national C&I sets for Armenia, Georgia, Kazakhstan, Kyrgyzstan and Uzbekistan as a basis for monitoring, reporting and assessing progress towards SFM and towards the SDGs (UNECE/FAO, 2019).

The Guidelines are universally applicable. They present a step-by-step approach to initiating a participatory consultative process to develop C&I for SFM. The Guidelines share concepts, definitions and tools and reference materials to support the process. The Guidelines feature a comprehensive list of global, international and regional C&I sets that countries can use to develop or improve their own national C&I sets, including the C&I sets of Forest Europe, the Montréal Process, the Low-Forest-Cover-Countries Process, ITTO and the Global Forest Resources Assessment (FRA). The Guidelines identify information and tools to implement SFM

at the national level, focusing on the identification of national indicators that are measurable, feasible, practicable and easily communicated.

SUSTAINABILITY ASSESSMENTS WITH ASSIGNED TARGETS

Nearly three decades after the Helsinki Ministerial Conference, where SFM was first defined for pan-Europe there is, as yet, no broad consensus on how to monitor and assess progress towards SFM objectively. Targets or thresholds for individual indicators have been developed, on an experimental basis, for the State of Europe's Forests Report 2011 (Forest Europe, 2011), for the Austrian C&I for SFM (Linser, 2020) (see also Annex 1) and in the SEMAFOR project (System for the Evaluation of the Management of Forests) (UNECE/FAO, 2016).

SEMAFOR was initiated by the UNECE/FAO Team of Specialist on Monitoring SFM. It resulted in an innovative regional assessment method to assess objectively progress towards SFM in European countries, aiming to answer two questions, "What are the areas of concern about sustainability in a given country?" and, "How are the areas of concern being addressed now?" The SEMAFOR concept is based on two major ideas: (1) using Pan-European indicators to assess progress towards SFM in European countries, setting common thresholds, and (2) leading to a dialogue with national experts who, for example, put the recorded data in context to threats to SFM or policy measures being put in place to address identified issues. It combines objective and transparent measurement with a modulated approach, which takes account of national circumstances, to produce credible and meaningful results, going beyond description to assessment.

Presently thresholds or targets assigned to the various indicators are of arisen interest and are increasingly requested for comprehensive sustainability assessments (Linser et al., 2018b; UNECE/FAO, 2019; Onida, 2021). Future indicator revisions should address these needs.

PARTNERSHIP IN DATA COLLECTION

Indicator-based forest and forestry data are a comprehensive reference and information framework on the current state of forests, related to the fulfilment of the ecological, economic and social functions of forests and their sustainable management.

The FAO Forest Resource Assessment (FRA) is the main source of information on the state of the forests globally. It has collated and reported forest-related information regularly since 1948. In 2012, FAO introduced a new Collaborative Forest Resources Questionnaire (CFRQ) partnership that consists of six organizations or regional and international processes: FAO, UNECE, FOREST EUROPE, ITTO, the Montréal Process and the Observatory of the Central African Forests Commission. The CFRQ is the successful outcome of the joint commitment of these organizations and the C&I processes to streamline and harmonize forest-related data collection, easing the reporting burden. The remaining regional and international C&I processes are not part of the CFRQ due to being at different stages in their development, especially the availability of harmonized data. Joint data collection first took place in 2014, and was repeated in 2018, covering 88% of the global forest area in 103 countries.

To streamline the collection of comparable information which is relevant for all countries worldwide, the Collaborative Partnership on Forests (CPF) developed the Global Core Set of Forest-related Indicators - a selection of 21 forest-relevant key indicators to be measured at national level. These show global trends towards achieving the 2030 Agenda for Sustainable Development (including monitoring SDG 15.2.1), the UN Strategic Plan for Forests, the UNFF Global Objectives of Forests and the obligations from the Rio

Conventions. A final decision on this global set is expected at the 16th session of UNFF. The set forms the basis for the country-wide analysis presented in the State of Europe's Forest 2020 Report (Köhl et al., 2020) as well as for defining the scope of INForest – a data and knowledge platform for forests in the UNECE region.

POLICY IMPLICATIONS

The results of C&I information may indirectly define the scope of sustainable forest management and topics that need to be monitored and assessed. Further, obtained information may support the revision of national forest strategies and programmes and assessment against the goals and targets included in those national policy documents. C&I based information might be used to formulate and assess progress towards quantitative targets set in forest-related strategies and to provide evidence-based information to support new targets in forest-related regional strategies and action plans (e.g. EU Forest Strategy, ITTO Strategic Action Plan). This applies equally at the global level, where the indicators under SDG 15.2.1 measure progress towards SFM contributing to achieve the 2030 Agenda for Sustainable Development. The Global Core Set of Forest-related Indicators measures progress in implementing the International Arrangement on Forests, particularly the achievement of the UNFF Global Objectives of Forests.

C&I sets in general, and the Global Core Set in particular, have roles as "norm setters" and stimuli, informing governments of the data to be collected for every indicator of the set to meet their reporting obligations. The data that are collected and reported regularly for the Global Core Set, are expected to lead to a voluntary de facto global minimum standard of information on forests and forestry that every country should meet.

The successes in developing forest-related indicators depends on much more than data availability. It requires ongoing political and institutional commitment, stewardship, a coordination unit, a clear derivation from political goals, broader communication instruments, capacity building and linkages with official statistics and the approaches to sustainability taken by other sectors. It requires effective monitoring, analysis and reporting tools, harmonized terms and definitions and means to assess sustainable forest management. It also needs action to modify policies and management where reports show that forest management is unsustainable.

CONCLUSIONS

In the three decades, starting with the 1990s, sets of C&I for SFM have been developed and applied in more than 170 countries worldwide and in every ecological zone, making it easier to monitor, report and assess SFM. The C&I sets and related reports helped to build a common understanding and language about SFM, and to establish C&I for SFM monitoring systems with extensive databases in several countries as well as within UNECE and FAO. The forest sector is a global leader in developing and applying C&I. This lead has given the sector a head start reporting SDG15 forest-related indicators (FAO, 2017). C&I for SFM are increasingly adapted to address forest-related sustainable development issues across other sectors, such as bioeconomy or climate change.

C&I processes benefit from being highly participatory, involving stakeholders and providing a network that fosters support and working together. C&I provide a holistic, comprehensive picture of every aspect of SFM.

The continued commitment of countries, intergovernmental bodies and fora, will present opportunities for more positive impacts on global forest policy statements, regional and national forest strategies, development plans, and other policy instruments. Together, these will strengthen progress towards SFM. C&I are a powerful policy tool, supplying understandable information that provides evidence of the effectiveness of policy measures and management. C&I for SFM-based reports have proven value in responding to pressing forest-

related issues, such as the need to develop sustainable bio-based economies, to maintain and protect biodiversity, and to mitigate and adapt to climate change.

This policy brief was developed as a part of the United Nations Development Account (UNDA) project Accountability Systems for Sustainable Forest Management in the Caucasus and Central Asia

Project manager: Roman Michalak

Project coordinator: Roksolana Shelest

Author of the policy brief: Stefanie Linser

ANNEX 1: OUTSTANDING NATIONAL C&I SETS

The Austrian C&I for SFM set was developed in 2005 and has been revised several times to adapt to changing needs and emerging issues. The set contains 32 pan-European quantitative indicators as well as 33 additional indicators of national importance. The C&I set was adopted by the Austrian Forest Forum and is well integrated in national forest policy making as all indicators are directly related to the goals of the Austrian Forest Program and the Austrian Forest Strategy 2020+. All data is presented in time series and for the indicator reports 2017 and 2020 each indicator contains agreed targets or thresholds as well as related assessments of the achievements which makes this set unique in comparison what is so far available in other countries. The report is written in German, but contains also in English: introduction, summary, list of indicators, targets, thresholds. A selection of key indicators and related data and information is presented in separate leaflets available in several languages.

The Australian C&I for SFM are based on the framework of the Montréal Process (MP) C&I for the Conservation and Management of Temperate and Boreal Forests. In 1998 the national-level MP Implementation Group for Australia adapted the 54 MP indicators to better suit reporting on Australia's unique forests. In 2006 the indicator set was reduced to 44 national indicators which have since been used as the basis for regular reports on a five-year interval. All 44 national indicators are aligned with the 54 MP indicators. The fifth report in the series, Australia's State of the Forests Report 2018 enables an efficient connection between state, national and international reporting processes. The report is driven through national processes such as reporting requirements for regional forest agreements and Australia's national forest policy. In turn, it provides data directly for international reporting obligations including FRA or SDGs.

ANNEX 2: REFERENCES CITED – TO LEARN MORE ABOUT C&I FOR SFM

Adriaanse, A. (1995): In Search of Balance. A Conceptual Framework for Sustainable Development Indicators. In MacGillivray, A. (ed.) 1994. Accounting for Change. Papers from an International Seminar. Toynbee Hall. The New Economics Foundation. London. Pp. 3-10.

FAO (2015a): Criteria and indicators for sustainable forest management. Project website.

FAO (2015b): Global Forest Resources Assessment 2015. How are the world's forests changing? Second

edition. FAO, Rome, http://www.fao.org/3/a-i4793e.pdf

FAO (2017): Keeping an eye on SDG 15. Working with countries to measure indicators for forests and mountains. FAO, Rome, 13 S. http://www.fao.org/3/a-i7334e.pdf

Forest Europe; UNECE; FAO (2011): State of Europe's Forests 2011; Status and Trends in Sustainable Forest Management in Europe; Forest Europe Liaison Unit: Oslo, Norway, 2011; ISBN 978-82-92980-05-7.

Giuntoli, J., Robert, N., Ronzon, T., Sanchez Lopez, J., Follador, M., Girardi, I., Barredo Cano, J., Borzacchiello, M., Sala, S., M'Barek, R., La Notte, A., Becker, W. and Mubareka, S. (2020):, Building a monitoring system for the EU bioeconomy, EUR 30064 EN, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-15385-6.

Köhl, M.; Linser, S.; Prins, K. (2020): State of Europe's Forests 2020. Ministerial Conference on the Protection of Forests in Europe. FOREST EUROPE Liaison Unit Bratislava, Slovakia.

Linser, S.; Wolfslehner, B.; Asmar, F.; Bridge, S.R.J.; Gritten, D.; Guadalupe, V.; Jafari, M.; Johnson, S.; Laclau, P.; Robertson, G. (2018a): 25 Years of Criteria and Indicators for Sustainable Forest Management: Why Some Intergovernmental C&I Processes Flourished While Others Faded. *Forests* 2018, *9 (9)*, 515. DOI: 10.3390/f9090515

Linser, S.; Wolfslehner, B.; Gritten, D.; Rasi, R.; Johnson, S.; Bridge, S.; Payn, T.; Prins, K.; Robertson, G. (2018b): 25 Years of Criteria and Indicators for Sustainable Forest Management - Have they made a difference? *Forests* 2018, 9(9), 578. DOI: 10.3390/f9090578

Linser, S.; Lier, M. (2020): The Contribution of Sustainable Development Goals and Forest-Related Indicators to National Bioeconomy Progress Monitoring. Sustainability 12(7):2898. DOI: 10.3390/su12072898

Linser, S. (2020): Indikatoren für nachhaltige Waldbewirtschaftung 2020/ Austrian Indicators for Sustainable Forest Management 2020. Bundesministerium für Landwirtschaft, Regionen und Tourismus - BMLRT, Vienna, Austria, 290 p.

Linser, S.; Wolfslehner, B. (2021): National implementation of the FOREST EUROPE indicators for sustainable forest management. Ecological Indicators (manuscript submitted in March 2021).

MCPFE (1993): Ministerial Conference on the Protection of Forests in Europe, 16-17 June 1993 in Helsinki.

MCPFE (1998): Third Ministerial Conference on the Protection of Forests in Europe. General declaration and resolutions adopted. Resolution L 2. Liaison Unit in Lisbon (Ed.).

Onida, M. (2021): Forest and forest policy between the EU and its Member States. ELNI Review. Environmental Law Network International, February 2021, pp. 22-30.

Ott, W. (1978): Environmental Indices: Theory and Practice. Ann Arbour Science. Ann Arbour. 371 p.

The Montréal Process (2015): The Montréal Process Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests.5th Ed. Montréal Process Liaison Office: https://www.montrealprocess.org/

UN (2018): United Nations Forest Instrument. Available online: https://www.un.org/esa/forests/wp-content/uploads/2018/08/UN_Forest_Instrument.pdf

UNECE/FAO (2019): Guidelines for the Development of a Criteria and Indicator Set for Sustainable Forest Management. (Linser, S.; O'Hara, P. Eds.) ECE/TIM/DP/73, United Nations, New York and Geneva, 89 p. DOI: 10.13140/RG.2.2.32430.36168/1

UNECE/FAO (2016): Pilot project on the System for the Evaluation of the Management of Forests (SEMAFOR). (Prins, K. Ed.) Geneva Timber and Forest Discussion Paper 66. United Nations, New

York and Geneva, 2016.

Wolfslehner, B.; Linser, S.; Pülzl, H.; Bastrup-Birk, A.; Camia, A.; Marchetti, M. Forest Bioeconomy—A New Scope for Sustainability Indicators; From Science to Policy 4; European Forest Institute: Joensuu, Finland, 2016, doi: 10.36333/fs04, ISBN 978-952-5980-29-5.