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PROPOSAL OF A MONITORING FRAMEWORK TO MONITOR THE IMPLEMENTATION OF THE EMERALD NETWORK

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1. Introduction

In December 2019 the Standing Committee approved a recommendation on the progress in the implementation of the Emerald Network of Areas of Special Conservation Interest which included a task to design a **monitoring framework** of the setting-up of the Emerald Network and to report on progress on yearly basis to the Standing Committee.

This activity is also closely related to other recommendations to prepare a detailed evaluation of the Calendar for the implementation of the Emerald Network of Areas of Special Conservation Interest (2011-2020), and to draft a post 2020 Strategic Plan for the completion of the Emerald Network grounded on the outcomes of the above evaluation. This plan should cover the period 2021-2030 and take into account the new global biodiversity framework and its eventual targets for protected areas, to be finalised at the CBD COP 15 in Kunming (China) in October 2020.

Each plan should also foresee means of assessing the progress achieved. Thus such monitoring framework should be based on a set of specific, measurable, achievable, relevant and time-bound indicators reflecting the extent to which Contracting Parties have progressed in the implementation of the Emerald Network. The indicators should aim both to measure the territorial extension and the qualitative evolvement of the network in each Contracting Party. The indicators agreed upon should feed into an online barometer available from the website of the Bern Convention, in collaboration with the European Environment Agency in the framework of the further development of the Emerald Network IT-Tools.

This work represents a proposal for the development of such monitoring framework. The ideas presented are largely inspired by the existing monitoring system of the Natura 2000 monitoring framework in the European Union.

2. General concept

The Emerald Network constitution process distinguishes three phases, thus ideally the monitoring framework should be adapted to measure the level of achievements in the individual Bern Convention party and corresponding to each of the Phases.

Phase I. Participating countries assess their natural resources and identify species and habitats to be protected according to the relevant resolutions of the Bern Convention. They subsequently **propose potential sites** which are suitable for ensuring the long-term survival of these species and habitats, and they **send a database** containing scientific information on the proposed sites to the Bern Convention's Secretariat.

Phase II. This phase involves an **evaluation of the sufficiency** of the proposed sites which has to be done at the level of each habitat and species listed in Bern Convention Resolutions No. 4 (1996) and No. 6 (1998). Once the scientific value of the proposed sites is assessed, all sites are submitted to the Standing Committee to become Candidate Emerald Network sites[1]. Eventually, on request of the Contracting Parties, the sites are sent for approval and are formally integrated in the Emerald Network as Adopted Emerald Network sites (ASCI's).

It is important to mention that the constitution of the network usually is a cyclic process which involves initial database submissions, evaluation, re-submissions with added sites and other new information, and re-evaluation (Figure 1).

[1] As stipulated in Recommendation No 157 (2011 and revised in 2019) on the status of candidate Emerald sites and guidelines on the criteria for their nomination

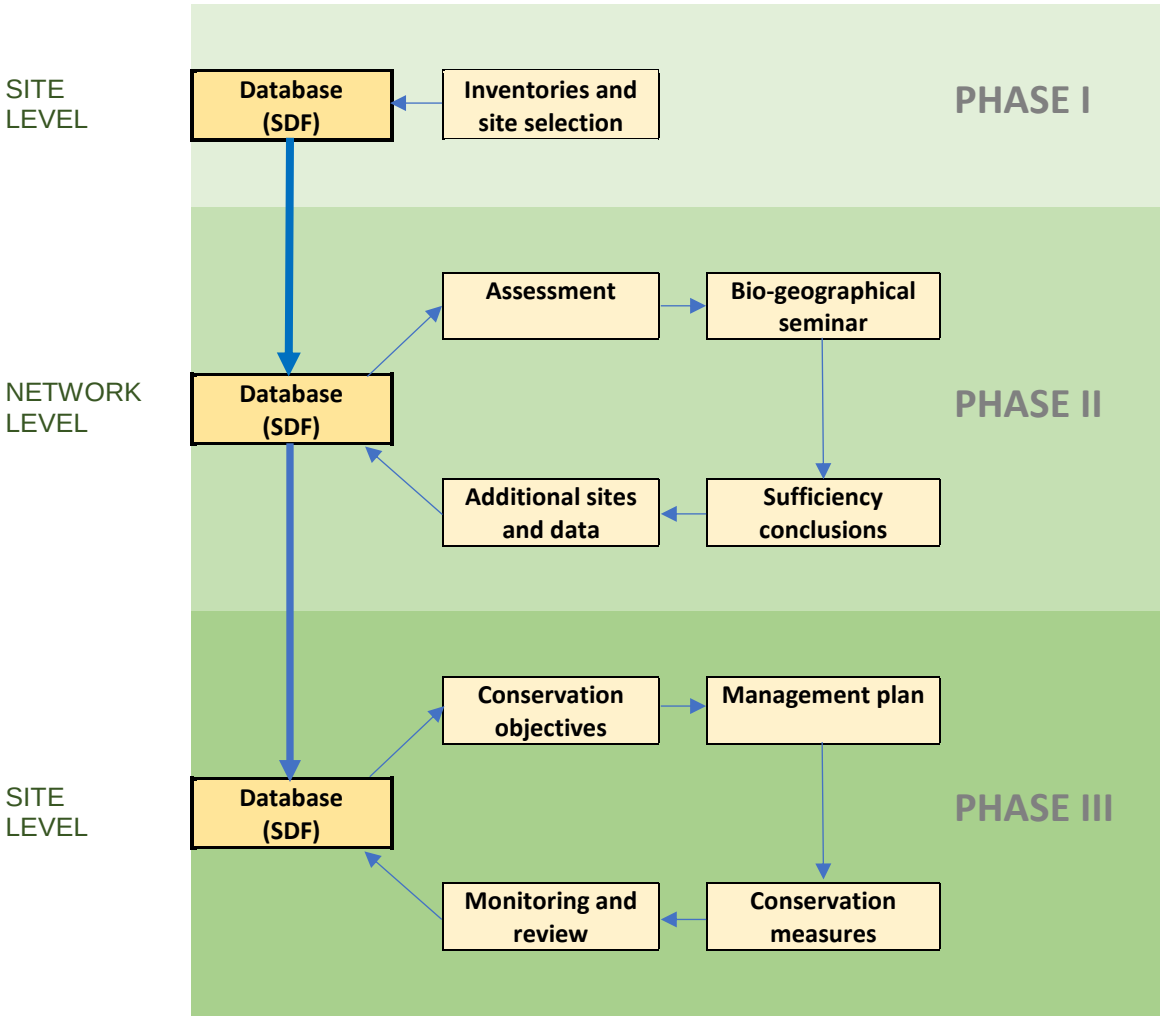

Figure 1. Idealistic visualisation of the Emerald Network constitution process. The central reference element is the Emerald Network database at the network level or Standard Data Form (SDF) at the site level. The database is evolving through all phases: first description in Phase I, updating as a result of bio-geographical process (Phase II) and recurrent review as a result of implemented and monitored conservation measures (Phase III).

Phase III. National designation of the adopted ASCI's and **implementation of management**, reporting and monitoring measures. Similarly, it is expected that the site management is a cyclic adaptive process which includes regular review of conservation activities (Figure 1).

Overall, at the country (network) level, the Phases II and III can start even if the preceding phase has not been fully accomplished. In many countries all phases actually take place at the same time. For example, some sites for the network may be still under investigation and being described (Phase I), others can be already assessed and adopted (Phase II), and other sites also may have specific conservation measures already introduced (Phase III). The actual difference between countries is rather in the proportions of sites belonging to each of the phases. Therefore, if individual countries are to be assessed, there is a need for a possibility to calculate indicator values at a country level for each phase.

This proposal was developed considering following principles:

- The proposed indicators are specific (i.e. corresponding to each phases of the network constitution);
- The indicators are measurable in quantitative terms (expressed in numbers);
- It is planned to use data only from already existing data sources. No additional effort to develop new data collection schemes is foreseen;

- The proposed indicators are simple and easy to interpret, yet they are informative;
- Indicators can be measured repeatedly in a longer time perspective thus enabling to perform comparisons between certain time periods;
- The results can be easily displayable in the IT tools for general public use.

3. Outline of possible monitoring framework

3.1. Phase I: national coverage

Most relevant metrics showing the progress in Phase I are the total number of Emerald Network sites (all possible sites in the most updated database version: proposed, Candidate and Adopted sites), their area and national coverage (percentage of the network area versus the national territory). These metrics are also a part of the "Natura 2000 barometer" in the EU[2] (Figure 2). The marine part of the network should be assessed and reported separately from the terrestrial part (as in the EU, Figure 2) during the ongoing further development of the Emerald IT Network tools, but within the framework of this paper we did not have capacities to do such specific division.

Yet the most informative of the mentioned metrics is the "**national coverage**", because the number of sites as such does not reflect the actual progress achieved. The total network area also does not provide objective measure of the progress because countries are of very different size. National coverage is presented as percentage which makes it easy to compare with or to measure the distance to accepted international standards such as the CBD Aichi targets or the new EU biodiversity strategy (European Commission 2020).

For specific analyses the coverage of the network can also be calculated by bio-geographical regions within a country. Compared to Natura 2000 in the EU, where sites are divided into SPAs (Birds Directive sites) and SCIs/SACs (Habitats Directive sites), all Emerald Network sites are equal in terms of legal status and process of their establishment.

Although the national coverage is most often correlated with sufficiency (Pritchard & Opermanis 2017; see also next chapter), there can be deviations from this norm and thus national coverage and sufficiency aspects should be considered as complimentary indicators. In the past in the Emerald Network documentation, the national coverage has been also referred to as a "quantitative" network measure, opposed to "qualitative" measure dealing with network sufficiency.

[2] European Commission's site: https://ec.europa.eu/environment/nature/info/pubs/natura2000nl_en.htm

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natura 2000 barometer update December 2019

THIS NATURA BAROMETER is produced by DG Environment with the help of the European Environment Agency. It is based on information officially transmitted by Member States up to **December 2019**.

The Natura 2000 network is composed of sites under the Habitats Directive (pSCI, SCIs or SACs – labelled 'SCIs' in the barometer) and sites under the Birds Directive (SPAs). The figures relating to the total area of Natura 2000 sites (i.e. SPAs + SCIs) have been obtained through GIS analysis. This avoids any risk of counting sites twice if they have been designated under both Directives.

Arrows indicate increase in

Member States	Natura 2000 network (terrestrial and marine)		TERRESTRIAL				MARINE			
			SCI	SPA	Natura 2000 network		SCI	SPA	Natura 2000 network	
	Total N° Natura 2000 Sites	Total area Natura 2000 km²	SCI area (km²)	SPA area (km²)	Natura area (km²)	% land area covered	SCI area (km²)	SPA area (km²)	Natura area (km²)	
AUSTRIA	352	12895	9378	10334	12895	15%	n.a.	n.a.	n.a.	AT
BELGIUM	310	5163	3282	3186	3891	13%	1128	318	1271	BE
BULGARIA	341	41554	33629	25609	38728	35%	2482	550	2827	BG
CYPRUS	62	10133	959	1493	1669	30%	↗↗↗ 8457	110	↗↗↗ 8464	CY
CZECH REPUBLIC	1153	11148	7951	7035	11148	14%	n.a.	n.a.	n.a.	CZ
GERMANY	5200	80831	33550	40263	55228	15%	20938	19738	25603	DE
DENMARK	384	22664	3289	2488	3616	8%	16492	12176	19048	DK
ESTONIA	567	14861	7806	6203	8106	18%	3883	6480	6754	EE
SPAIN	1872	222515	117584	101619	138111	27%	54895	52071	84405	ES
FINLAND	1866	50636	42197	24550	42495	13%	7676	7402	8141	FI
FRANCE	1776	203564	48752	44016	70875	13%	106306	↗ 119646	↗ 132689	FR
GREECE	446	58778	21912	27761	35982	27%	17528	10764	22796	GR
CROATIA	783	25954	16036	17050	20716	37%	4919	1112	5238	HR

Figure 2. Natura 2000 barometer as presented in the European Commission's nature and biodiversity newsletter.

Technical specifications:

- National coverage should be calculated using the spatial dataset of the Emerald Network database. Although tabular data are often considered to be primary, site area values should be always derived from the spatial dataset.
- National coverage should be ideally calculated at interval of one year after harvesting databases from the Bern Convention parties following the agreed dataflow principles of the Emerald Network. The countries deliver a new database by 28 February. Subsequently, this indicator can be updated using the latest Emerald Network database release.
- Marine coverage should be calculated using the agreed Pan-European digital coastline as used by the EEA for the Natura 2000 barometer in the EU.

A similar table format (as in Figure 2, but see proposal on chapter 4 in this report) can be presented on the Bern Convention's web-page and a more elaborated digital version, searchable by country and subject, is under development in the Emerald Network WebApp as an equivalent of the Natura 2000 barometer dashboard[3].

Specific SEBI indicator (Streamlined European Biodiversity Indicators developed by the EEA) exist for the coverage of protected areas, namely SEBI 007 and 008. Formerly such indicator existed also for the sufficiency. Recently, SEBI 007 and SEBI 008 were also calculated for countries with Adopted Emerald Network sites[4].

3.2.Phase II: sufficiency index

An essential part of Phase II is the sufficiency assessment (sometimes called a bio-geographical process) of proposed Emerald Network sites for all habitats listed in Resolution No. 4 (1996) and all species listed in Resolution No. 6 (1998) of the Bern Convention (see also Figure 1). The outcome of this process is sufficiency conclusions for each species and habitat which indicates necessary work for countries in order to achieve a complete and coherent network of sites.

[3] https://www.eea.europa.eu/data-and-maps/dashboards/natura-2000-barometer
[4] https://www.eea.europa.eu/data-and-maps/indicators/nationally-designated-protected-areas-10/assessment

The conclusions are recorded in a systematic way using certain categories of conclusions (Table 1). A possible more informative and easy-to-calculate figure is the **proportion of "sufficient" conclusions** versus all conclusions (see, e.g., Pritchard and Opermanis 2017). However, some potential but not critical problems with such "sufficiency index" should be noted.

First, different categories of non-sufficient conclusions indicate very different tasks at various difficulty levels. If they are merged into one common "not-sufficient" category, some aspects of the amount of work to be done may have been lost. Nevertheless, all conclusions in any case need to be examined in detail by countries individually, thus it is not even necessary to try to encompass all conclusion types in a single index which has a different function than to display each conclusion in detail. It would also not make sense to develop another similar indicator only on non-sufficient conclusions, a kind of "insufficiency index", which would be contra-productive.

Secondly, such indicator (with a minor modification, called "sufficiency index") earlier has been developed in the EU by the EEA to assess the completeness of the Natura 2000 network. However, it proved to be useful and informative only until most countries reached over 90% sufficiency and since 2008 this index is not being calculated anymore. For some period after this, an alternative to this index in the form of stacked bar-chart showing the proportions of different conclusion categories has been produced, but even this has been recently abandoned.

Nevertheless, as almost all countries implementing the Emerald Network are very far from 90% sufficiency and will probably still need several if not many years to reach such level, it is proposed to develop the **simple sufficiency index** for the monitoring of the Phase II of the Emerald Network constitution process. Given the early stage of the Emerald Network development, it could be informative for a significant period of time. Anything else that could be developed from the conclusions database would be more complex both in calculations and interpretation.

During the recent joint EU/CoE programme on the implementation of the Emerald Network in the Eastern partnership countries and the Russian Federation (2017-2019), a specific index was developed to improve the measurement of the progress between two subsequent bio-geographical seminars. This approach was based on ranking the conclusions (Table 1) from least effort demanding (e.g. correction of data, CD) to most effort demanding (e.g. many new sites required, IN MAJOR). By summing up all changes between two seminars, it was possible to obtain a trend (progress or regress) and a magnitude of change. Yet in our view these calculations are too complex for a rather "universal index" which would be calculated on a regular basis and intended for the general public. But periodically this could be useful to assess progress between two evaluation rounds if such need appears.

Table 1. Categories of sufficiency conclusions.

Code	Meaning	Action required
SUF	Sufficient	No further sites needed
IN MAJOR	Insufficient major	No sites proposed at present. A major effort to designate sites is needed.
IN MOD	Insufficient moderate	One or a number of additional sites (or maybe extension to sites) required. IN MOD GEO means that additional site(s) are required in certain region to eliminate geographical gap.
IN MIN	Insufficient minor	No additional sites required but habitat/species should be noted on sites already proposed for other habitats/species
CD	Correction of data	Data needs to be corrected / completed / deleted
Sci Res	Scientific reserve	A definite conclusion is not possible: need to investigate/clarify a scientific issue – interpretation of habitat, controversial presence of species, etc.

For general monitoring purpose, sufficiency index has been calculated using all features occurring in a particular country, but for specific analyses it can also be elaborated more in detail by species taxonomic groups, broad habitat classes, or bio-geographical regions (see examples in Pritchard and Opermanis 2017)

Technical specifications:

- The sufficiency index should be grounded on the **consolidated sufficiency conclusions** which are prepared on a regular basis by the end of each year provided that there has been at least one evaluation seminar.
- The consolidated sufficient conclusions include all current Emerald Network conclusions across all non-EU countries which have started the network constitution. The calculation will of course be based on the most recent conclusion for each feature.
- Similar consolidated sufficiency conclusions exist also for the Natura 2000 network in the EU.

Please see chapter 4 of this report for a proposal on how the sufficiency indicator could be displayed together with other information.

The Phase II of the Emerald Network constitution is supposed to end with the adoption of all Emerald Network sites as Areas of Special Conservation Interest (ASCI) by the Standing Committee. Thus, a potential indicator could also be the national **coverage of Adopted Emerald Network sites** (in contrast to national coverage of all sites in the database, see chapter 3.1.). The Emerald Network WebApp will create separate databases for the creation of the so-called ASCI List of Emerald Network adopted sites and the List of Emerald Network candidate sites as yearly adopted by the Standing Committee and published in the Emerald Network Reference Portal[5]. The coverage of Emerald Network adopted sites can be extracted from these databases.

This could be an interesting indicator, particularly if examined together with the national coverage of all sites in the database used for Phase I of the constitution process. If there is a continuous large gap between these two measurements in some country, it can be questioned if the Emerald Network sites assessed during the bio-geographical seminars have any protection[6] and if the conclusions on the sufficiency are any more valid because of the possible deterioration of the sites.

3.3.Phase III: conservation measures

This is probably the most under-developed part of the network assessment, mainly because a vast majority of countries and sites have not yet entered this phase, particularly in setting conservation objectives and introducing appropriate conservation measures.

Also, but to a less extent, this applies to the European Union Natura 2000 network. Some information is presented in "The State of Nature in the EU" webpage[7] and available for each Member State and for the EU as a whole. In general, this data comes from the reporting on the conservation status of the species and habitats under Nature Directives, thus it is not specific about the conservation measures within the Natura 2000 network. Yet, the sub-chapter "Location of measures" (under 7.2 Additional information) does provide cues about proportions of measures undertaken within the Natura 2000 network.

The European Commission has recently conducted targeted surveys, e.g. on SAC implementation (2017), or still planning to develop methodologies to assess efficiency of Natura 2000 sites (marine SPAs). To our knowledge there is no place where all information on conservation measures is available from which some indicators could be derived. There is no specific SEBI indicator (Streamlined European Biodiversity Indicators developed by the EEA) dealing with conservation measures.

To develop an indicator on conservation measures, the first option would be to use reporting data on the conservation status of species and habitats. This could inform how existing conservation measures (or a lack of them) contribute to the overarching aim of the Bern Convention to ensure the long-term survival (favorable conservation status) of the protected species and habitats in a country. A possible indicator could be a **percentage of species and habitats with favorable conservation status**. However, here we see more problems than solutions:

- The reporting under Resolution No. 8 (2012) of the Bern Convention has just been initialized in 2019 for the reporting period 2013-2018. The current sample of 46 features (12 bird species, 25 non-avian

[5] https://www.coe.int/en/web/bern-convention/emerald-network-reference-portal
[6] Authors are aware that a study on obligations of Contracting Parties towards Emerald Network Candidate vs Adopted Emerald Network sites is currently ongoing.
[7] https://www.eea.europa.eu/themes/biodiversity/state-of-nature-in-the-eu/article-17-national-summary-dashboards/conservation-measures

species, 9 habitat types) would probably be insufficient to calculate overall status objectively (Roekaerts & Opermanis 2020), but continued efforts in the future could form a better basis for such indicator, calculated every 6 years according to the reporting cycle.

- Although the Emerald and Natura 2000 networks are considered a cornerstone of nature conservation policy in Europe, there are a lot of natural values remaining outside these networks, especially for common and widespread species and habitats. The aim of the Emerald Network monitoring framework would be to focus primarily on the efficiency of the Emerald Network, but the status assessments based on the data resulting from the reporting under Resolution No. 8 (2012) may be influenced by the processes taking place outside the network. Efforts will be needed to separate the effect of the Emerald Network from the effects of other conservation initiatives.
- The format of the reporting under Resolution No. 8 (2012) includes little information which can be attributed to the Emerald Network. Some overall assessment of the Emerald Network is included in section 4 and 5 of Annex A of the format. In section 4 of Annex A of the reporting format of Resolution No. 8 (2012)[8], information has to be given on the number of Adopted Emerald Network sites where comprehensive management measures are put in place. Section 5 of Annex A focuses only on cases with particular problems related to development projects.
- Section 11 of Annex B and D (related to non-avian species and habitats) and section 9 of Annex F (related to birds) of the reporting format requires to provide the number of sites where at least some (unfortunately not concrete) conservation measures have been put in place. They also require information about the trends of each feature in each Emerald Network site. From the experience so far, it appears a very ambitious task to get such information and we expect that for a majority of features in most sites, no reliable data will be available in the nearest future.

To conclude, today in 2020 we cannot see how the Emerald Network monitoring framework could benefit from the data reported under Resolution No. 8 (2012). After years, with further development of the Emerald Network and the reporting data (in terms of completeness and quality) a need and possibility to develop a new indicator will appear. May be even EU will suggest something concrete and non-EU countries will have an opportunity just to adapt it. Currently it is very difficult to foresee how the need to ensure conservation measures will be approached and solved in different non-EU countries with different political systems and funding levels available for nature conservation. A special attention should be paid on how countries will fill in the reporting format sections related to conservation measures (see previous paragraph/bullet-point).

An alternative indicator from existing data (Emerald Network site database) would be to extract from the Emerald Network site database the proportion of sites which have a **management plan**. This would require verifying the extent to which this information is complete and accurate. But even if such information would be available, the presence of a management plan (which is important but only as a first step) does not necessarily guarantee that adequate conservation objectives are set, that conservation measures are in place, that monitoring and regular review of the plan exists (Figure 1, Phase III).

Even this indicator could be useful at the very start of the Phase III of the constitution process and sufficiently inform the countries, the Bern Convention Secretariat and the broad public about initial progress of assessing needs for conservation measures. It is also important that data for this indicator are readily available and that their update on a more or less regular basis is foreseen.

The technical specifications regarding the dataflow are the same as for the national coverage (section 3.1 above). Information on management can be found in the Emerald Network database's "Site" table which provides identifier (ID) for the linked tables "mgmt", "mgmt_body" and "mgmt_plan".

For the development of the figures for this indicator (Table 3), only the records in the table "mgmt._plan" were used. These records seemed the most reliable source of information. Data quality issue needs to be examined before proper calculation of this indicator is implemented. The proposed way of presentation is given in Table 3 below.

4. Summary of proposal and concluding remarks

This chapter is aimed to summarise sections 3.1, 3.2, and 3.3 into a concrete concept of monitoring framework to be developed for the Emerald Network. The planned framework is designed in accordance with the general

[8] https://rm.coe.int/reporting-format-for-the-period-2013-2018/168073fa26

process of the Emerald Network constitution process (Figure 1). Altogether five indicators are foreseen. Table 2 lists the proposed indicators together with data sources and eventual use in the post-2020 Emerald Network strategic work-plan which is currently also under development. The second indicator for Phase III (based on reporting data) is still to be decided after (possibly) one or two subsequent reporting rounds.

Table 2. Monitoring framework outline.

Proposed indicator	Data source	Application
1. National coverage (%) of all types of Emerald Network sites (with total number and area)	Emerald Network database	To assess progress with Phase I: site inventories and database
2. Sufficiency index (% of sufficiency conclusions versus all conclusions)	Consolidated sufficiency conclusions (database)	To assess progress with Phase II: coherence of the network
3. National coverage (%) of Adopted Emerald Network sites (with total number and area)	Emerald Network database and WebApp	To assess progress with Phase II: legal protection of sites
4. Proportion (%) of Adopted Emerald Network sites with management plans	Emerald Network database	To assess progress with Phase III: planning of conservation measures
5. Additional indicator on implementation of conservation measures [TBD]	Database of the reporting under Resolution No. 8 (2012) possibly together with the Emerald Network database [TBD]	To assess progress with Phase III: actual implementation [TBD]

Table 3 represents a proposed way of presentation of the four indicators and actual results that can be calculated from the indicated data sources as from the end of 2019. Unlike the Natura 2000 Barometer, all indicator values are displayed in one table thus enabling a **horizontal comparison** of country's performance across the implementation Phases.

Table 3. Possible table to present indicators discussed in this paper (which would shape the final Emerald Network Barometer. It should be noted that the following Contracting Parties have not yet submitted any database concerning the development of the Emerald Network: Burkina Faso, Iceland, Liechtenstein, Monaco, Morocco (only pilot project data), Senegal, Tunisia and Turkey.

The red arrows indicate new submissions which are not yet evaluated. Country abbreviations follow ISO international standards[9]. Numbers in square brackets provide cross-reference to the numbering of proposed indicators in Table 2.

Country	Phase I			Phase II				Phase III
	Number of all site types	Area of all site types sites (km^2)	National coverage of all site types [1] (%)	Sufficiency index* [2] (%)	Number of adopted sites	Area of adopted sites (km^2)	National coverage of adopted sites [3] (%)	Proportion of adopted sites with management plans [4] (%)
AD	2	26.2	5.6	11.9	2	26.2	5.6	100.0
AL	25	5224.3	18.2	28.7	0	0	0	0
AM	23	10337.2	34.8	68.7	0	0	0	21.7
AZ	17	16795.3	19.4	21.7	0	0	0	0
BA	29	2504.6	4.9	0.7	0	0	0	0
BF	-	-	-	-	-	-	-	-
BY	162	24038.4	11.6↑	27.7	155	23064.7	11.1	8.0
CH	37	642.2	1.6	1.4	37	642.2	1.6	21.6
GE	58	12629.1	18.1	25.1	46	10401.9	14.9	1.7
IS	-	-	-	-	-	-	-	-
KZ	-	-	-	-	-	-	-	-
LI	-	-	-	-	-	-	-	-
MD	61	3252.0	9.6	24.0	61	3252.0	9.6	47.5
ME	32	2400.78	17.1	18.0	0	0	0	0
MK	35	7543.8	29.3	16.1	0	0	0	0
MA	-	-	-	-	-	-	-	-
MC	-	-	-	-	-	-	-	-
NO	706	49687.3	15.3	19.8	568	44033.4	13.6	0
RS	61	10210.8	11.6	13.5	0	0	0	0
RU	1635	499497.9	12.6	8.4	0	0	0	0
SN	-	-	-	-	-	-	-	-
UA	377	80982.4	13.4	40.1	377	80982.4	13.4	2.1
TN	-	-	-	-	-	-	-	-
TR	-	-	-	-	-	-	-	-

*Technical details on calculation of sufficiency index. Combined conclusion of SUF/CD considered as SUF. Following categories excluded from the calculations: only CD (which in most cases means a need to delete redundant elements in database), Exclude from the Reference List, ND (not discussed), NE (not evaluated) and R ("political reserve"). For the sufficiency index calculation presented in this table 7606 valid conclusions were used from 15 countries.

If necessary, for each of the indicators, targets developed could be developed (this is more related to the post 2020 strategic work-plan). For example, indicators 1 and 3 could be compared to the Aichi target of 17% of national terrestrial territory to be protected. Indicators 2 and 4 would possibly aim at 100%, but it is highly unlikely that such targets, especially about conservation measures, could be achieved anywhere during the period 2021-2030.

The sufficiency index can only theoretically be of 100%. Over the time both nature changes and scientific knowledge constantly improves, thus countries need to step back from previous sufficiency conclusions and carry out additional, unanticipated work. Therefore, a sufficiency index of over 95% could be considered a good achievement.

[9] https://en.wikipedia.org/wiki/ISO_3166-1

Likewise, management plans are also a temporary document which require regular review and updates. Thus the only fact that a country has stated that a particular site has a management plan in a certain year, does not guarantee that extant plan exists after e.g. 10 years. Authorities are not always able to catch up with updates of the expired plans.

This proposal of Emerald Network monitoring framework should be discussed within the frame of the Group of Experts on Protected Areas and Ecological Network in October, 2020. Authors would appreciate any suggestions on how to improve this work. In parallel this draft framework will help in developing the post-2020 Emerald Network strategic work-plan.

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