Guidelines and template for the review of the draft monitoring framework for the post-2020 global biodiversity framework

I. Background

1. The second meeting of the Open-ended Working Group[1] on the Post-2020 Global Biodiversity Framework invited the Subsidiary Body on Scientific, Technical and Technological Advice at its twenty-fourth meeting to, among other things, carry out a scientific and technical review of the updated goals and targets, and related indicators and baselines, of the draft global biodiversity framework. Under agenda item 3 the Subsidiary Body will consider this issue.

2. Tables 1 and 2, presents a draft monitoring framework for the 2050 Goals and the 2030 targets respectively. These tables are being made available for the purposes of peer review. In both tables' interim formulations of the proposed 2050 goals and milestones and the 2030 targets are provided for context. Review comments are not being sought on these parts of the post-2020 global biodiversity framework at this time. Column A of the tables provides draft components of the goals and targets. Columns B and C of the tables provide draft monitoring elements and indicators to be used at the global level to monitor progress in the implementation of the post-2020 global biodiversity framework. Further column D provides information on the period baseline data is available for the indicator and on the frequency that the indicator is updated where known. Review comments are being sought on columns A, B, C and D only.

II. Submitting Comments

1. To ensure that your comments are given due consideration, please send them by e-mail to secretariat@cbd.int, at your earliest convenience but **no later than 25 July 2020**

2. When submitting comments, please adhere to the following guidelines as much as possible:

   a. Please provide all comments in writing and in an MS Word or similar document format using the table provided below.

   b. Please provide full contact information for the individual/Government/organization submitting the comments.

   c. Please avoid commenting on issues related to grammar, spelling, or punctuation, unless it affects the overall meaning of the text, as the document will be edited as the final draft is prepared.

   d. To facilitate the revision process please be as specific as possible in your comments. In areas where you feel additional or alternative text or information is required, please suggest, if possible, what this text may look like or what should be included.

   e. If you refer to additional sources of information, please include these with your comments when possible or provide a complete reference or hyperlink.

   f. Please focus your comments on columns A (monitoring elements), B (indicators) and C (Indicator baseline year and frequency of updates) of the tables 1 and 2.

   g. If you are suggestion the inclusion of additional indicators please provide information on if the indicator is currently operational, the organization supporting its development, its

[1] CBD/WG2020/REC/2/1

baseline (i.e. the year data is first available) and how frequently the indicator is updated (i.e. monthly, yearly, every two years etc.).

h. All review comments will be posted on the webpage[2] for the post-2020 global biodiversity framework in the interests of transparency

3. Should you have any questions regarding the review process, please contact secretariat@cbd.int.

III. Template for Comments

4. Please use the review template below when providing comments.

5. The complete draft of the monitoring framework has been released in a portable document format (PDF). For tables 1, 2 and 3 column letters and row numbers have been provided as well as page numbers. Please use these as a reference as illustrated in the table below. General comments can be included in the table by referring to Page 0 and Line 0.

TEMPLATE FOR COMMENTS

Review comments on the draft monitoring framework for the post-2020 global biodiversity framework	
Contact information	
Names:	Elbing, Kerstin (VBIO) & Neumann; Dirk (DNFS)
	Joint submission on behalf of VBIO and DNFS
Given Name:	
Government (if applicable)**:**	
Organizations:	- German Life Sciences Association (VBIO e. V.; www.vbio.de) and - Deutsche Naturwissenschaftliche Forschungssammlungen (DNFS e.V. - https://www.dnfs.de)
Address:	VBIO e. V., Luisenstraße58-59, 10117 Berlin, Germany DNFS e. V. c/o SNSB, Münchhausenstr. 21, 81247 München, Germany
City:	
Country:	Germany
E-mail:	elbing@vbio.de, neumann@snsb.de

[2] https://www.cbd.int/conferences/post2020

General Comments
About the general approach German Life Sciences Association (Verband Biowissenschaften, Biologie und Biomedizin in Deutschland, VBIO e. V.) and Consortium of German Natural History Collections, DNFS (Deutsche Naturwissenschaftliche Forschungssammlungen) represent scientists conducting publicly funded, non-commercial basic research. Our members are engaging in scientific research collaborations all over the world and actively take part in capacity building, training, public outreach and Citizen Science. Most research activities of our individual and institutional members are closely linked with the Sustainable Development Goals as well as with the CBD Goals. Many goals and targets of the post-2020 GBF depend on the scientific backbone and expertise of the research activities of our members. Increasing scientific capacities and expertise to understand, sustainably use and conserve global biodiversity deliver crucial contributions to slow down biodiversity loss. We warmly welcome the opportunity to appraise the present draft of the monitoring framework for the post-2020 global biodiversity framework. We hope our comments will support the work of the SBSTTA-24 and help to improve the monitoring framework for the 2050 Goals and the 2030 targets. They are themselves challenging to implement, as the goals of the CBD, SDGs and post-2020 GBF show broad overlaps. There is hardly any doubt that we have to intensify all efforts to increase the knowledge on biodiversity from the genetic level up to the ecosystem level – including ecosystem-services. This deserves increasing research activities and therewith more collaborative approaches than those already on the way. Unfortunately the Nagoya Protocol did not reduce the existing diversity of access regulations thus failing to stimulate research. The post-2020 GBF has the potential to heal some of obvious deficiencies and frustrations present in some provider countries as well as on the researcher side. We are hopefully, that it will be possible to introduce meaningful indicators, designed to deliver objective measures of multiple Trends in Biodiversity. Nevertheless we are aware about the risk that imprecise or improper indicators may lead to new misunderstandings or expectations, thus evoking more and new frustrations on all sides. The comments of VBIO and DNFS are aligned with those of the Consortium of European Taxonomic Facilities (CETAF) and the Society for the Preservation of Natural History Collections (SPNHC), with which we exchanged views, but comments differ in details.
Proper baselines must be ensured The time-scale for goals A & B of the post-2020 GBF currently are not precisely defined and partly ambiguous. Irrespective of a *pre-human disturbance*, *pre-industrial*, *IPEBES 1970*-baseline or more recent baselines like *CBD-adoption* or "*2000*" (cf. point 5 in *Information Document prepared for SBSTTA24 by UNEP-WCMC in collaboration with the Biodiversity Indicators Partnership*), any measure on "trends in biodiversity", species abundance and species occurrence has to reflect change in species composition and occurrence over time. It is obvious to us, that a well-defined, relevant and broadly accepted baseline is needed to set the context within which trends for individual indicators can be evaluated. This is essential for the measuring of the desired goal or target outcome. The current draft lacks reference to specimen-based data of natural history collections and similar ex-situ facilities. Without proper specimen-based data, any measure on "trends in biodiversity", species abundance and species occurrence will give misleading baselines. We believe that our contributions are key and have high relevancy not only for the post-2020 GBF, but also for all three objectives of the CBD and specifically for SDG 14&15, and would appreciate their consideration by SBSTTA-24.
More refined approach on commercial and non-commercial sectors is required Ways of access and utilisation in commercial and non-commercial user sectors and consequently monetary and non-monetary benefits sharing differ fundamentally. Both elements of benefit sharing are therefore addressed differently in the Nagoya Protocol.

Unfortunately, the current draft of Goal C and associated targets (e.g. 1, 6, C, 74-76 or 2, 24, C, 149) falls behind this and we would appreciate are more refined approach that would reflect the differences of commercial and non-commercial access as well as monetary and non-monetary benefits sharing contributions. We know that collecting relevant data on non- monetary Benefit Sharing may pose challenges. Nevertheless, non-monetary benefit sharing, especially research collaborations, training and capacity building have high relevancy not only for the post-2020 GFB, but also for SDGs and the CBD. Thus it should be explored how data for respective indicators could be allocated on national level. We are concerned that some actors rate non-monetary benefit sharing as rather "nice to have". This is even more unfortunate, since non-monetary benefit sharing delivers most of the benefits that are currently shared unnoticed. With our specific suggestions we aim to increase their visibility and the scientific contributions to non-monetary benefit sharing.

The highly diverse contributions of non-monetary benefit sharing must be properly recognised

Section III in Annex 1 of the report of 'DSI' AHTEG (CBD/DSI/AHTEG/2020/1/7) highlights the relevancy of non-monetary benefits for capacity building and the role of research infrastructures to sustain the achievements resulting from those benefits and to develop endogenous research capacities especially in the global south so that countries can identify, understand, monitor and manage their own biodiversity. We agree to all items mentioned in this section and contribute to them actively, e.g. through close scientific collaboration with researchers from countries that wish to develop own expertise. Both, assessments and responses to monitor post-2020 GBF progress will require experts mostly with academic background that do the job. This was previously reflected in the zero draft version with the indicator "new jobs created" under goal 5 and target 11 (CBD/WG2020/2/3/Add.1), but has been omitted in the current version. We propose to include this element again with a specific focus on bachelor, master & PhD degrees under target T19.3. *Promotion of biodiversity in education*.

Furthermore, capacity building is often tightly linked with international research collaborations or internships and project-related work, in which scientists from different countries are united and engage. Such collaborations, which are specifically directed to contribute to all three objectives of the CBD, would benefits from simplified measures under Art. 8a NP. Selected countries already have implemented such simplified measures. The current draft version includes an own metric on access under Art. 8c and it is not intuitively clear not to include a parameter to measure access under Art. 8a as well, which could be useful to highlight the engagement for the CBD and SDGs (see would support capacity such efforts with an own indicator (see comments below to 1/6/C/72 and 2/22/C/140).

Red list index is not a comprehensive measure

"Red list index" is mentioned very often (table 1& 2), but in some cases we have doubts whether this is a proper parameter to give a comprehensive measure. For example, in some areas Red Lists are available rather on regional level (e.g. Africa) or are incomplete (e.g. insects or fungi). Often, national Red Lists are either missing or not properly assessed (i.e. national Red Lists that do not follow IUCN criteria). Particularly biodiversity-rich countries are challenged to establish, develop, update and maintain comprehensive for all biota and species red lists. Lack of taxonomic experts and expertise adds to this. Often there are only few experts for specific groups globally (cf. CBD decisions to overcome the Taxonomic Impediment). As a result, it is hardly possible to evaluate for example the "Number of species extinctions..

ABS legislation in practise

At different places (e. g. Goal D, Target 12) 'development of ABS legislation' is equated with benefit sharing per se. From the very pragmatic scientific viewpoint, we would like to point out that the mere existence of any ABS legislation (in Goal D: „means") might only be a proxy (or even less) for the evaluation of the actual number of accessed genetic resources in some countries (despite existing ABS legislation).

Similarly, Access and Benefit Sharing is usually agreed and paraphrased on quite different levels, e.g. in PIC and MAT, but also in collaboration agreements between collaborating institutions, export permits, combined PIC&MAT documents, etc. Thus, the relevant data that should be recorded is rather dispersed

and heterogeneous – or even not available at all. From a pragmatic point of view, we suggest to measure "agreed cases of access" instead of number of individual PIC and MAT documents, which may or may not cover the actual number of access cases in respective countries.

Specific Comments

Table	Page	Column letter	Row number	Comment
1	2	A	1-50	Components A1 & A2 refer to 'natural ecosystems' and 'ecosystem integrity' respectively. Nevertheless most indicators measure habitat quality. Conservation programmes usually have a specific focus to improve habitat quality rather than ecosystem quality. Thus, the corresponding metrics and indicators are designed to monitor habitats (cf. EU Water Framework directive, RAMSAR R-METT Tracking tool, etc.). *Proposed change:* *As biodiversity loss is closely correlated with habitat loss or degradation, we suggest to rephrase the components as* • *A1. "Increased extent **and quality** of natural **habitats** (…)"* • *and "A2. "**Habitat** integrity and connectivity (…)"*
1	2	A	13-14	RAMSAR data might be worth adding here, especially as R-METT tracking tool some close linkages to SGDs; https://www.ramsar.org/resources/periodic-evaluation-and-review
1	3	A	34	Proper detection of "Increase the population and health of species" would require comprehensive scientific data on (e. g.) population structures and intra-population genetic diversity. This data is available for few flagship species only but is lacking for most species. Thus, compiling more knowledge is a crucial point and should be highlighted already in the name of the component. In this context we want to emphasize the connection between Component T5.1 under target 5 and AICHI Target 9 (inferences on potential invasive species are difficult without profound knowledge on species and their dispersal). *Proposed change:* *Thus we suggest slight rephrasing of this target* *"A4. Increase **the knowledge on species, population structures and their health**."*
1	3	C	34-35	The Habitat Index and the Living Planet Index (LPI) deliver some rough information on "Trends in species abundance'. It is worth noting, however, that the LPI is exclusively based on (land) vertebrate species and thus for example overlooks invertebrate diversity which is much larger and has high biological and economic relevancy and importance (e.g. pollinators others than bees). Accordingly, LPI alone is a poor data basis and should be expanded if this indicator should deliver adequate data. To get a more comprehensive overview, additional biodiversity

				data should be included like e.g. GBIF, GEO BON or indexed publication databases, such as European PubMed Central (EPMC), Zoological Record, or similar publication aggregators. In addition, data and information on biodiversity is shared widely through a range of national, regional and global initiatives contributing to complete a catalogue of the world's species for example by using 'DNA barcoding' to identify species. The huge importance of such (additional) data for trends and status of species has been highlighted in the Biodiversity Outlook 4 with specific reference to AICHI Target 19. *Proposed change:* *We recommend including additional data from other resources like GBIF, GEOBON, European PubMed Central (EPMC), Zoological Record, The Plant List, Index Fungorum, WoRMS, etc.*
1	4	A	36	In the current version, no indicator is given for the Monitoring element "Trends in the diversity of wild species." The "**Completeness of the world's species catalogue"** would be a suitable indicator. The importance of for this catalogue has been indicated repeatedly (e.g. CBD-decisions to overcome the taxonomic impediment). Moreover, National Biodiversity reports would highly benefit from these data, which also would have high relevancy for Monitoring elements in T5.2 and for Target 19 in general. *Proposed change:* *Inclusion of "**Completeness of the world's species catalogue**" **as proper indicator** for the monitoring element "Trends in the diversity of wild species."* *Proposed data sources could include:* • *GBIF* • *INSDC* • *BOLD* *Baseline: 1970 – annually*
1	6	C	72	Access to Genetic resources (Component C1) has slowed down since 2014 (https://link.springer.com/article/10.1007/s13127-017-0347-1), although research directed towards the goals of the CBD, SDG 14&15 and AICHI Targets 9 & 19 strongly depends on access to biological material in CBD countries. Simplified access under Art 8a for non-commercial research is a strong stimulus to promote research and capacity building in this sector (see also section III in CBD/DSI/AHTEG/2020/1/7). *Proposed change:* *We highly recommend the consideration of a **new indicator** for component C1 „Access to Genetic resources": **Number of Nagoya Protocol Parties which have implemented simplified measures on access for non-commercial research purposes under Art. 8a**.*

				Proposed data sources: Reports of National Focal Points to the ABSCH. *Baseline 2014 – annually.*
1	6	C	74-76	Ways of access and utilisation as well as approaches of monetary and non-monetary benefits sharing differ fundamentally. Thus, a more refined approach on commercial and non-commercial sector is required (see general comment). Because component C2 depends on C1 and cannot be seen in isolation, we strongly propose to separate the indicators for components C1 and C2. Proposedly, this was the intention behind the separation of indicators in lines 74 & 76, which are basically the same, besides the '*monetary and non-monetary'* in 76: C1 • Trends in access to genetic resources for commercial use • Trends in access to genetic resources for non-commercial use C2 • Trends in the monetary benefits from the access to genetic resources shared • Trends in the non-monetary benefits from the access to genetic resources shared • Trends in the commercial utilisation of genetic resources • Trends in the non-commercial utilisation of genetic resources
1	6	C	74	It will be very challenging to estimate "Trends in the benefits from the access to genetic resources shared". As benefit sharing is agreed on different levels with Provider Countries (e.g. in PIC, MAT, collaboration agreements, etc.) the relevant data is rather dispersed and heterogeneous (if available at all). It might be worth to consider measuring of e.g. '*realised research collaborations*', '*capacity building*' and '*structural expansion of capacities of relevant research infrastructures*' on a national level instead. In this context BIOFIN might offer helpful tools. BIOFIN requires an initial evaluation of the baseline situation to develop specific programmes and actions, i.e. it includes already measures and metrics that where agreed by CBD parties (COP 10 with refined tools agreed at COP 14). BIOFIN also has close linkages to SDGs, biodiversity and conservation. However, these metrics are currently designed for a basic assessment and would need to be developed further to measure "progress". *Proposed change:* *We suggest evaluating incorporation of available BIOFIN tools to improve the estimation of the monitoring element under component C2.*
1	6	C	75b	As outlined in the general comments, commercial and non-commercial utilization have different approaches. Concerning non-commercial utilization we miss a specific indicator to measure relevant shifts in C2-elements.

				It might be worthy to think about quantifying the access to scientific information relevant to conservation and sustainable use of biological diversity (including biological inventories and taxonomic studies). This could be easily measured through the number of relevant datasets already published. <u>*Proposed change:*</u> *We propose the* ***new indicator "the increase of access to scientific information relevant to conservation and sustainable use of biological diversity, including biological inventories and taxonomic studies*** *Proposed data sources: Databases e. g. INSDC databases or BOLD systems.* *Baseline 2014 – annually*
1	6	C	76	A suitable indicator to measure „Trends in non-monetary benefits from access to genetic resources shared" specifically is urgently needed to substantiate the great contribution of non-monetary benefits which are already shared. Data compilation will be challenging particularly in the academic sector – but worthwhile, as this would highlight scientific collaborations with Providing Countries. It could be worthy to discuss the number of relationships that arose from an access and benefit sharing agreements. <u>*Proposed change:*</u> *We propose the* ***new indicator "the increase in the number of institutional and professional relationships that can arise from an access and benefit sharing agreement and subsequent collaborative activities"*** *to collect data on elements under C2.* *Proposed data sources: National Research data bases* *Baseline 2014 – annually*
1	6	A	77-78	Minor glitch in GOAL D which supposedly should read „Means of implementation is available to achieve all goals and targets ***<u>of</u>*** the Framework."
1	7	C	79	No indicator is given to quantify "Trends in the mobilization of financial resources from private sector". We propose specific programmes established under BIOFIN with outcome-oriented results as a suitable indicator. BIOFIN metrics (pre- and post-project) are already closely aligned with SDG goals 14 and 15 and potential benefits for further SDGs. <u>*Proposed change:*</u> ***Suggested indicator*** *for this element:* ***"Specific programmes established under BIOFIN with outcome-oriented results."*** *Proposed data source: BIOFIN* *Baseline: 2018 – annually*
1	7	B/C	81-84	Typically, international research collaborations unite scientists form multiple countries. While monitoring elements under C.2 theoretically would allow bilateral referencing of shared benefits

				with specific countries - besides all obvious practical challenges to do so - it seems nearly impossible to establish any process oriented measuring on bilateral level under D2. Further, there is some overlap with *Trends in monetary and non-monetary benefits from access to genetic resources shared* in line 76. Possibly a good proxy would be to look out for (increased) funding allocated for basic research infrastructures on national level. A good starting point could be the basic assessment and metrics used in BIOFIN, OECD stats and national reports on annual investments in research infrastructures in ABS relevant sectors. Even though collecting and compiling such data on national level surely would be challenging and may only cover a small proportion of the ongoing activities in capacity building, scientific collaborations and related activities, it still could be a good proxy. *<u>Proposed change:</u>* *We suggest deriving an indicator which reflects the (increased) funding allocated for basic research infrastructures on national level.*
1	7	B/C	85	No indicator is provided for "Trends in access to relevant technologies". In this context we want to point out that increasing numbers of users of international scientific databases might serve as a proxy indicating growing use and competencies for example to handle modern techniques to analyse molecular data. Thus, a suitable indicator could be country specific information on users of open access data such as sequence information uploaded to INSDC or other databases. National statistics on technology-related imports or sales (e.g. essential consumables or key components) might provide further trend data. *<u>Proposed change:</u>* *We suggest to consider a) "country specific uploads to relevant databases per country" and b) "National statistics on key technology imports or sales" as two separate potential indicators.* *Proposed data source: a) Databases e. g. INSDC databases or BOLD systems.* *b) national statistical data e.g. on Foreign Trade Control* *Baseline: 2014 – annually*
2	12	C	53	We are not sure if the Red List Index is a good indicator here, because national Red List Assessments are incomplete or missing at all. Similar data sources, for example FAO fishery statistics e.g. for African Freshwater habitats are often patchy and incomplete as well (e.g. not commercially targeted species in the food web), and most invertebrate species would just not be recorded by the suggested Red List Index metric at all. From

				a pragmatic point of view, it would be useful to look into species assessments carried out after respective conservation measures, however, this would require continued evaluation of treated habitats. It would be a better metric to measure "*Trend in ex-situ conservation measures*", suitable data could be sourced from NBDAPs.
2	14	C	71	The issue is related to AICHI Target 9 and is closely linked with AICHI target 19, components A4 & A5 under Goal A and the SDGs 14 & 15 (see comments on 1/3/C/34-35 & 1/4/A/36). Identification of *invasive alien species* shows a broad overlap with identification of species in general and the required sufficient taxonomic expertise and access to respective biological material, particularly for invertebrates or fungi were experienced taxonomic experts are scarce on global level. *Proposed change:* *It might be worth linking this indicator closely with components A4 & A5 under Goal A.* *Proposed data source:* *It might be worth trying to map lists of invasive species globally (e.g. http://www.iucngisd.org/gisd/100_worst.php or http://www.iucngisd.org/gisd/) or at national level (e.g. through the list generated by GBIF on the CBD country pages, where this is present) with BOLD species contents.*
2	14	D	72	**Potential data source**: https://www.nobanis.org/
2	15	B	71	T[**r**]ends in the impact of invasive alien species [minor typo].
2	22	C	140	The draft distinguishes between "standard" Access and Access under Art. 8c NP but does not address access under Art. 8a NP. Therewith it discriminates against science although research directed towards all three goals of the CBD, SDG 14&15 and AICHI Targets 9 & 19 strongly depends on access to biological material in CBD countries. We propose to insert a new indicator addressing Art 8a as simplified access under Art 8a for non-commercial research would be a strong stimulus to promote research and capacity building in this sector (see also section III in CBD/DSI/AHTEG/2020/1/7), thus serving post-2020 components A4 & A5 under Goal A. *Proposed change:* *We propose a* ***new indicator*** *addressing Art 8a.* ***"Number of NP-parties which have implemented simplified measures on access for non-commercial research purposes under Art. 8a."*** *Proposed data sources: NFPs. Baseline: 1970 – annually.*
2	22	C	141	"Total number of permits (…)" is difficult to quantify, because of the huge diversity of 'permits' covering & addressing 'access' on quite different levels and often outside of PIC and/or MAT, e.g. as part of research collaboration agreements. If this is

				intended to be a process-oriented indicator, it might be worth considering collecting data on 'granted access requests' from National Focal Points rather than 'issued permits'. <u>*Proposed change:*</u> *We suggested to change the indicator "Total number of permits or their equivalent granted for access to genetic resources" to „**Total number of approved access requests to genetic resources**".*
2	23	C	143-145	The draft indicators • „Number of countries that require prior informed consent that have published legislative, administrative or policy measures on access and benefit sharing in the ABS Clearing-House" (143), • "Number of countries that require prior informed consent that have published information on ABS, procedures in the ABS Clearing-House" (144) and • „Number of countries that have adopted legislative, administrative and policy frameworks to ensure fair and equitable sharing of benefits (SDG Indicator 15.6.1)" (145) are not a measure for access per se as complex and often ABS laws slow down or even hinder access (https://link.springer.com/article/10.1007/s13127-017-0347-1).
2	23	C	145	We doubt whether the "Number of countries that have adopted legislative, administrative and policy frameworks to ensure fair and equitable sharing of benefits (SDG Indicator 15.6.1)" is a useful indicator. The formal presence of (possibly complex, inefficient or administratively challenging) procedures is not a robust measurement of real access to genetic resources. <u>*Proposed change:*</u> *It might be worthy moving this to component T12.2 and merging it with indicator in line 147.*
2	24	B	146	No indicator specified. An outcome-oriented indicator is needed that would record benefits arising from multilateral, international research collaborations. This could be achieved with a new monitoring element which picks up the formulation of Art. 8a NP (create conditions to promote and encourage). <u>*Proposed change:*</u> *We suggest a **new monitoring element**: **"Availability of scientific information that promotes and encourages the conservation and sustainable use of biological diversity, including biological inventories and taxonomic studies."*** *Data source could be key databases (inter alia INSDC, GBIF, BOLD, BHL, Catalogue of Life). INSDC already allows allowing review of data downloads / use by country.* *It should be considered if annual operational and maintenance costs of such key research infrastructures for basic research (open for scientists worldwide) can be included.*

				Baseline: 2014 – annually.
2	24	C	146	In our experience, benefit sharing often has no direct linkage to individual ABS-agreements despite bilateral or multilateral grants to promote such collaborations. Also, benefits usually arise with considerable delay after access to Genetic Resources (e.g. with publication of scientific results after termination of projects) and often are based on contributions of scientists from multiple countries collaborating closely during research projects. It has turned out that a close, bilateral approach (i.e. access to Genetic Resources directly equates to realized benefits for respective Provider Countries) doesn't work well for multilateral/international research collaborations. Adjustment of this indicator would allow to heal some of the fundamental dysfunctionalities of the NP (cf. CETAF and joint VBIO/LVB on Art. 10 NP, recommendations for capacity building of the AHTEG on 'DSI', CETAF submission on 'DSI'). Non-monetary benefit sharing by far exceeds the amount of monetary benefits that have been realised and shared so far. Non-monetary benefits, i.e. sharing of knowledge through publication of scientific research results, usually are shared on a global basis for the common good, in the manner required by AICHI Target 19. The proposed indicator for this monitoring element should be capable to reflect this decoupled approach, and the assessment tools developed in BIOFIN to evaluate progress on the Strategic Plan for Biodiversity 2011-2020 already consider this. Evolving these further could be the anticipated game changer. *Proposed change:* *We propose the* ***new indicator "Increases in collaboration, cooperation and professional relationships arising from access and benefit sharing agreements and subsequent collaborative activities."*** *Suitable data sources could be:* • *Increased number of joint authorships* • *National research funding programmes directed to post-2020 GBF & SDG goals and targets* • *number of joint (major) research funding programmes (e.g. regional EU-ECOFAC programmes, major research programmes like H3Africa, IndoBioSys* • *specific funding schemes (e.g. Programme Advocating Women Scientists)* • *direct scholarships (e.g. DAAD, Humboldt grants but also grants from Providing Countries to support travels of own scientists abroad* • *programmes realised under the GTI of the SCBD* • *bilateral reports to CNAs of provider countries that could be included in national reporting to the SCBD.* *Baseline: 2018 – annually.*
2	24	B & C	147-148	See general remarks on the inadequate equivalency between existence of ABS legislation and real benefit sharing.

2	24	C	149	It is not clear to us, how the suggested indicator "Estimated % of monetary and non- monetary benefits directed towards conservation and sustainable use of biodiversity" relates to Benefit Sharing under the NP. Whilst one can theoretically quantify monetary benefit and monitor the amount which is directed into conservation and sustainable use in specific countries, this will be very challenging in case of non-monetary benefit sharing. Moreover, the modes of monetary and non-monetary benefits sharing differ fundamentally. This is even more unfortunate, since non-monetary benefit sharing delivers most of the benefits rather unnoticed. <u>*Proposed change:*</u> *We suggest splitting of this indicator and to record monetary and non-monetary contributions separately.*
2	24	C	149	No indicator provided <u>*Proposed change:*</u> We recommend the ***new indicator "Realised monetary benefits and other financial contributions directed towards conservation and sustainable use of biodiversity"*** *Potential data source: Financial contributions realised under BIOFIN, EU-ECOFAC and similar programmes (pre- and post-project metrics).* *Baseline: 2018 – annually.*
2	24	C	149	No indicator provided <u>*Proposed change:*</u> *We recommend the* ***new indicator****: Non-monetary benefit sharing contributing to the understanding, conservation and sustainable use of biodiversity.* ***Potential data source****: Pre- and post-project metrics of projects linked with NBSAPs collected on national level, Strategic Biodiversity Plans and related monitoring programmes, increased data pools for country specific information on AICHI Targets 9 & 19, IUCN Red List assessments, etc.* *Baseline: 2018 – annually.*
2	26	B	154	Actual values and contributions of biodiversity and eco-system services are still poorly understood and rarely considered at all. Additionally it seems that 'realised assessments' would be a better indicator for the proposed metric, rather than "development process" itself. <u>*Proposed change:*</u> ***Changing*** *of the current* ***monitoring element*** *"Trends in integration of biodiversity and ecosystem service values into development processes."* ***into*** *"****Realised assessments of biodiversity and ecosystem service values and their inclusion into development processes."***

2	27	A	159-161	*Proposed change:* *It would be worth considering linking T13.3 more closely with Art. 8a NP (see comments above).*
2	34	A	212-216	Different Monitoring items (post-2020, AICHI Targets and SDGs) rely on adequately funded research infrastructures and capacity building programmes that are closely linked with SDGs. It is unclear how indicators in lines 212-216 should effectively be translated into action and secured without mobilisation of financial resources for respective infrastructures responsible for the generation of the required scientific data for those actions and programmes and sustaining them in the long run. See also recommendations for capacity building of the AHTEG on 'DSI'. Therefore, the basic assessment of national research infrastructures is a key element in the BIOFIN assessment which COP parties agreed to. *Proposed change: The indicators could be linked with or based on BIOFIN indicators, which already have required and agreed metrics for measuring.*
2	35	A	212b	It cannot be taken for granted that the existing data portals (INSDC, GBIF, BOLD) are secured in the long run, as maintenance costs are increasing with increasing data amounts. Investments in these critical infrastructures are essential for post-2020 monitoring elements or the CBD & SDGs as such. Furthermore, such platforms are the key to respond to pandemics, epidemics and health issues of men, plants and animals. *Proposed change:* *We recommend including the* ***new component: T18.2b "Increase in financial resources of key data infrastructures operating in the digital domain."*** *We propose the corresponding* ***new monitoring element "Trends in the mobilisation of financial resources to maintain and operate web-based research infrastructures".*** *The* ***new indicator*** *for this element should be* ***"Annual financial contributions allocated granted by public and private sources to sustain web-based research infrastructures operated under FAIR principles".*** *Potential data source: annual budget of data portals such as INSDC, GBIF or BOLD.* *Baseline: 2014 – annually.*
2	35	B	217&218	*Proposed change:* *Missing indicators could be linked with or based on BIOFIN indicators, which already have required and agreed metrics for measuring.*
2	36	B	219b	*The component „T18.3. Increase in financial resources from domestic sources" is not specific enough to cover the enormous contribution of basic research infrastructures related to*

				biodiversity. *Proposed change:* *We strongly advocate for the inclusion of the new component T18.3 phrased "Increase in financial resources from domestic resources allocated to basic research infrastructures engaged in biodiversity research".* *The corresponding monitoring element may be defined as "Trends in the mobilisation financial resources allocated for the public research sector."* *As a suitable indicator we would like to introduce "Annual national or federal basic funding for research infrastructures as part of the GDP." Potential data source: Respective data on allocated research funding on national level (cf. suitability of existing BIOFIN and/or OECD-metrics for potential conversion).* *Baseline: 2014 - annually.*
2	36	C	226	GBIF is an important, but surely not the only relevant biodiversity data aggregator for 'Trends in the availability of biodiversity related information" Also, GBIF provides observation and not necessarily occurrence data (as proposed in the draft), and thus it might be worth expanding this indicator. *Proposed change:* *We propose to* ***adjust and expand the current indicator "****Growth in World's Species Records Accessible for example through GBIF"* ***to*** *"****Completeness of the world's species catalogue****".* *Proposed data sources:* • *Catalogue of Life* • *GBIF* • *International Barcode of Life* • *BIOSCAN* • *BOLD* • *Zoological Record* • *The Plant List* • *Index Fungorum* • *WoRMS* • *National Biodiversity reports* • *monitoring elements for AICHI Targets 19 & 9, including monitoring elements in T5.2* • *monitoring elements for SDGs 14 & 15* • *NSBAPs & IUCN Red Listings* *Baseline: 1970 – annually.*
2	36	C	226b	Ex-situ facilities are an important aggregator of biodiversity related knowledge, associated research and for scientists worldwide. Increased accessibility to objects and related information is key not only for many post-2020 goals, targets and indicators, but also for AICHI Targets 19 & 9 and SDGs 14 & 15.

				<u>*Proposed change:*</u> *We suggest the* ***new monitoring indicator: "Number of datasets published by ex-situ facilities through data aggregators such as INSDC databases, BOLD or GBIF has increased.****"* *Proposed data sources: increased datasets on data platforms such as INSDC, BOLD or BOLD.* *Baseline: 1970 – annually*
2	38	B	227b	Ex-situ facilities are an important aggregator of biodiversity related knowledge, associated research and for scientists worldwide. Increased accessibility to objects and related information is key not only for many post-2020 goals, targets and indicators, but also for AICHI Targets 19 & 9 and SDGs 14 & 15. <u>*Proposed change:*</u> *We suggest the* ***n*ew monitoring element *"Trends in accessibility to ex situ facilities"*** *with the proposed* ***new Indicator*** *"Number of specimens accessible in ex-situ facilities has increased". Proposed data sources: Annual increase of specimen records of ex-situ facilities.* ***Baseline****: 2014 – annually.*
2	37	C	234	Successful degrees are closely linked with functioning basic research infrastructures like academia and ex-situ collections. An increased numbers of successful degrees (bachelor, master, PhD) would be a good indicator for the promotion of education and required experts. <u>*Proposed change:*</u> *We suggest a* ***new indicator: "Number of bachelor master & PhD degrees granted in biodiversity relevant research disciplines."*** *Proposed data sources: National data on education.* *Baseline: 2014 – annually.*
3				**Proposed adaption of indicator:** Completeness of the world's species catalogue; Relevant Goals and Targets: A, C, 1, 3, 4, 5, 7, 8, 9, 12, 19; Row Number: 36
3				**New indicator:** Number of Nagoya Protocol Parties which have implemented simplified measures on access for non-commercial research purposes under Art. 8a; Relevant Goals and Targets: A, C, 1, 4, 5, 8, 9, 12, 19; Row Number: 72
3				<u>*Proposed adaption of indicator:*</u> *The increase of access to scientific information relevant to conservation and sustainable use of biological diversity, including biological inventories and taxonomic studies*

				Relevant Goals and Targets: C, 1, 5, 8, 12, 19 Row Number: 75b
3				<u>*Proposed new indicator:*</u> *The increase in the number of institutional and professional relationships that can arise from an access and benefit sharing agreement and subsequent collaborative activities.* Relevant Goals and Targets: C, 1, 5, 8, 12,19 Row Number: 76
3				<u>*Proposed indicator:*</u> *Specific programmes established under BIOFIN with outcome-oriented results;* *Relevant Goals and Targets: D, 2, 4, 13, 14, 16, 18, 20* *Row Number: 79*
3				<u>*Proposed new indicators:*</u> *a) "Country specific uploads uploads in relevant databases per country"* *b) "National statistics on key technology imports or sales" as two separate potential indicators* *Relevant Goals and Targets: D;12, 18, 19* *Row Number: 85*
3				<u>*Proposed new indicator:*</u> *Number of Nagoya Protocol Parties which have implemented simplified measures on access for non-commercial research purposes under Art. 8a* *Relevant Goals and Targets: A, C, 1, 4, 5, 8, 9, 12, 19* *Row Number: 140*
3				<u>*Proposed adjustment of Indicator:*</u> *„Total number of approved access requests to genetic resources"* *Relevant Goals and Targets: C* *Row Number: 141*
3				<u>*Proposed indicator:*</u> *Increases in collaboration, cooperation and professional relationships arising from access and benefit sharing agreements and subsequent collaborative activities;* Relevant Goals and Targets: A, C, D, 1, 4, 5, 9, 12, 19, 20 Row Number: 146
3				<u>*New indicator:*</u> Realised monetary benefits and other financial contributions directed towards conservation and sustainable use of biodiversity; Relevant Goals and Targets: A, C, D, 2, 3, 4, 9, 12, 14, 18 19, 20 Row Number: 149
3				<u>*New indicator:*</u>

				Non-monetary benefit sharing contributing to the understanding, conservation and sustainable use of biodiversity Relevant Goals and Targets: A, C, D, 1, 3, 4, 8, 9, 12, 19, 20; Row Number: 149
3				*Proposed new indicator:* Annual national or federal basic funding for research infrastructures as part of the GDP Relevant Goals and Targets: A, C, D, 1, 4, 5, 8, 9, 12, 15, 16, 18, 19, 20; Row Number: 212
3				*Proposed new indicator:* *Annual financial contributions allocated granted by public and private sources to sustain web-based research infrastructures operated under FAIR principles* Relevant Goals and Targets: A, C, D, 1, 4, 5, 7, 9, 12, 15, 16, 19, 20; Row Number: 212b
3				*Adjusted indicator:* Completeness of the world's species catalogue Relevant Goals and Targets: A, C, D, 1, 3, 4, 5, 7, 8, 9, 12, 19; Row Number: 226
3				*Proposed adjusted indicator:* *"Growth in World's Species Records Accessible for example through GBIF" to "Completeness of the world's species catalogue".* Relevant Goals and Targets: A, C, D, 1, 3, 4, 5, 7, 8, 9, 12, 19, 20; Row Number: 226
3				*New monitoring indicator:* *"Number of bachelor master & PhD degrees granted in biodiversity relevant research disciplines."* Relevant Goals and Targets: B, D, 2, 4, 8, 9, 10, 12, 13, 14, 15, 19, 20; Row Number: 234

Comments should be sent by e-mail to secretariat@cbd.int ***no later than 25 July 2020***.