Ambitions in national plans do not yet match bold international protection and restoration commitments

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ABSTRACT

Almost 200 nations have made bold commitments to halt biodiversity loss as signatories to the Kunming-Montreal Global Biodiversity Framework ('GBF'). The effective achievement of the GBF relies on domestic targets and actions, reflected in National Biodiversity Strategies and Action Plans ('NBSAPs'). NBSAPS are an integral feature of the Convention on Biological Diversity ('CBD') framework, and signatory nations were requested to submit revised NBSAPs prior to COP-16 incorporating the GBF goals and targets. Here we review NBSAPs of the 36 nations that submitted prior to COP-16 and assess their commitments to implementing Target 2 (the 30% restoration target) and Target 3 (the '30 x 30' protection target). By first breaking these targets into their constituent elements, and assessing the detailed wording of each NBSAP, we discover that no nation has created a plan that meets all the requirements – and overall ambitions - of these two targets. With five years remaining until the intended realisation of the GBF, countries will need to increase both their ambition and action if Earth's biodiversity crisis is to be abated.

MAIN

The Kunming-Montreal Global Biodiversity Framework ('GBF') was adopted in late 2022 by the Conference of the Parties ('COP') to the Convention on Biological Diversity ('CBD')[1] and is considered the most ambitious agreement on biodiversity conservation and sustainable use to date. The passage of the GBF represented an important step forward for international biodiversity policy, setting quantitative targets for biodiversity conservation,[2] and shifting from actions to outcomes.[3] In particular, the GBF sets out four key goals, broken down into 23 targets for action,[4] with the most prominent being Target 3 (the '30 x 30' protection target), and Target 2 (the 30% restoration target).[5] The Targets are accompanied by a sense of urgency: Section H of the GBF states that 'actions set out in each target need to be initiated immediately and completed by 2030'. However, both targets leave significant scope for domestic interpretation, which could result in strong or weak implementation[6] – for example, how a country classifies and inventories 'degraded' land and water is critical to how much land and water will be under restoration.[7]

While many environmental principles and goals are often first defined in international fora, it is primarily through national policy and strategies that these goals are put into action.[8-10] In the biodiversity context, these national policies can be discerned from the National Biodiversity Strategies and Action Plans ('NBSAPs'). NBSAPs are an integral feature of the CBD framework, which requires contracting parties to develop national strategies for implementing the convention (CBD, Article 6), and to report on these measures and their effectiveness (CBD, Article 26). Ideally, NBSAPs should have high-level support from policy makers (e.g., legislators and country leaders) and be the product of cross-ministerial cooperation.[11]

The success of international targets depends heavily on these national strategies and their subsequent implementation, but there have historically been gaps between the targets espoused in international agreements and domestic responses,[10,12,13] both in the expression of the targets in domestic instruments[14] (the 'ambition gap'), and/or in actual on-ground implementation[15] (the 'implementation gap'). For this reason, previous international biodiversity targets like the Aichi Targets[15] have not been realised.[14,17,18]

With COP-16 now concluded and two years elapsed since the adoption of the GBF, it is timely to consider whether the GBF targets are on track to be achieved by signatory nations. Critically, the GBF was accompanied by a request that contracting parties revise and update their NBSAPs prior to COP-16, incorporating the GBF goals and targets[11] - a request that was followed by 36 parties (See Fig 1). Although this number falls well short of the total signatories to the GBF, these NBSAPs provide a picture of how countries intend to integrate these Targets domestically.

[INSERT FIG 1]

Here we review these 36 NBSAPs to analyse their domestic commitments to implementing Targets 2 and 3 of the GBF. Specifically, we considered the extent to which the 36 NBSAPs addressed all the elements of Targets 2 and 3, and also whether they outlined specific actions to implement Targets 2 and 3 (see Fig. 2).

RESULTS AND DISCUSSION

Overall, we did not find that any NBSAPs comprehensively addressed all elements of Targets 2 and 3, supplemented with a clear plan to operationalise them. While most NBSAPs mentioned the GBF, only half explicitly mapped their commitments against the GBF targets, so subjective judgements were made in the remaining 16 NBSAPs regarding which content related to Targets 2 and 3 (see supplementary data file for detailed breakdown). Here we discuss how the NBSAPs treated each element of Targets 2 and 3 (See Fig. 2).

[INSERT FIG 2]

Quantitative elements

The inclusion of a clear quantitative element is seen by some as critical to ensure a high level of ambition when it comes to conservation target setting.[19,20] Both Targets 2 and 3 include a quantitative element of 30% by 2030 (Fig. 2).

But despite this, when considering the restoration target, we found that only nine NBSAPs (25%) made a broad commitment to restore ecosystems expressed as a percentage (Aruba, China, Curaçao, Japan, Libya, Luxembourg, Republic of Moldova, Tunisia, Uganda). Of these, six committed to restore 30%, or at least 30%, of ecosystems, with Libya committing to 20%, Republic of Moldova to 10%, and Tunisia to 15%. Some countries committed to a percentage target of particular habitat types only. For example, Austria committed to 30% of 'priority floodplains' but did not set a target for other areas and habitat types. The UAE committed to restore 80% of 'ecologically significant' land and marine areas, but this is not defined. Similarly, the Republic of Korea committed to restoring 30% of 'priority areas'. A number of countries expressed their commitment in terms of hectares: for example, Hungary set out hectare targets for different ecosystem types (including wetlands, permanent grasslands, and forest ecosystems), and Malaysia committed to having 200,000 ha of degraded sites being actively restored by 2030. Other countries were less explicit and shied away from quantitative expression in their commitment. For example, Italy simply committed to ensuring that 'large surfaces of degraded [ecosystems] are restored', Australia committed to restoring 'priority degraded areas', and Suriname acknowledged that restoration is very new in their country and committed to actions to set priorities and procedures for restoration prior to initiating any works. Other countries have simply referred to work already undertaken to restore areas (e.g. Jordan, Canada), or the then pending (but now passed) European Nature Restoration Law as a means of facilitating restoration (France, EU).

There was a stronger trend of countries committing to quantitative protection targets, with 22 NBSAPs (61%) including a target for protected areas expressed as a percentage. This greater engagement with quantitative protection targets (as compared to restoration) is perhaps unsurprising given the history of percentage targets being set for protected areas in previous CBD strategic plans[21] and the creation of the 'high-ambition coalition' which now has 119 nations committing to financing '30 by 30'.[22] However, it still falls well short of what is needed to meet Target 2, especially because of these 22 countries that made a quantitative commitment, only 14 committed to protect 30% or at least 30%, while eight committed to a lower target (between 4%-20%). Of the remaining countries, some partially committed to a percentage target, or committed to one in particular areas or ecosystem types only. For example, Indonesia made hectare-based commitments in terrestrial areas, and committed to 10% of marine areas under protection by 2030. Finally, some countries expressed their commitment to increasing protected areas in a non-quantitative way (e.g. Canada).

Qualitative elements

The inclusion of qualitative elements alongside areal percentages is also seen as critical to ensure a high level of ambition when attempting to achieve targets.[23,24] This is because protection and/or restoration of 30% of the Earth could make an enormous difference to biodiversity outcomes if it is concentrated in the right places. Alternatively, it could make little difference if action is focused outside important biodiversity areas most in need of protection and restoration.[3,6,25,26]

Target 2 contains qualitative text directing that restoration be undertaken 'to enhance biodiversity and ecosystem functions and services, ecological integrity and connectivity'. We found that none of the NBSAPs surveyed adopted that specific language, although some partially engaged with it. Of the nine NBSAPs that included a percentage target for restoration, only five supplemented this with qualitative language: for example, China referred to restoring ecological corridor connectivity as part of their restoration commitment. A further five NBSAPs used some form of qualitative language when discussing restoration, but did not make a comprehensive quantitative commitment. These qualitative commitments included various references to biodiversity or ecological values throughout the text (e.g. Hungary referred to 'natural values', Ireland and France referred to biodiversity, Republic of Korea referred to 'ecological values'). Some NBSAPs expressed a preference for restoration in areas with carbon sequestration potential (EU, Austria, Italy), while some did not address the intended object of restoration at all (e.g. Spain, Japan, Suriname, Cuba, Burkina Faso, Malaysia).

Target 3 also contains a qualitative element, which is that protection should focus on 'areas of particular importance for biodiversity and ecosystem functions and services'. Again, Target 3 fares better than Target 2 in our sample NBSAPs, with just over half (n=21, 58%) of the NBSAPs including a qualitative element in their interpretation of Target 3. Like Target 2 though, countries did not necessarily use terminology that mirrors the GBF framing. For example, the EU NBSAP committed to protect areas with a specific focus on 'areas of very high biodiversity value or potential', the Republic of Korea referred to 'areas of high ecological value', and Cuba made a commitment to undertake further studies to ascertain the biodiversity values of areas prior to choosing where to expand the protected area estate. Some European country NBSAPs committed to at least 30% total with 10% in strict protection and referred to that 10% as being areas with high biodiversity value (e.g. Luxembourg, Austria, Italy). Finally, some countries take an entirely different approach – for example, the UAE NBSAP commits to prioritising areas with high economic importance.

The lack of engagement with the qualitative aspects of Targets 2 and 3 is concerning given past experiences.[27] Even if countries embrace the quantitative aspect of the targets – which as we outlined above, is not universally occurring – this will not automatically translate to good outcomes for biodiversity. For example, while countries embraced the quantitative components of the Aichi targets, particularly in relation to protected areas,[27] most countries tended to focus

on increasing the size of the terrestrial protected area estate rather than addressing the qualitative elements (e.g. management effectiveness and ecological representativeness).[28]

Covering land and water

Historically, marine and coastal areas have lagged behind terrestrial areas in both protection[29] and restoration.[30] The reasons for this are multifactorial including cost and difficulty[31] and complex legal and governance arrangements.[32] However, these areas offer critical ecosystem services including carbon sequestration at higher rates than terrestrial environments,[33] coastal protection and water quality enhancement,[34] and food and livelihoods for billions of people globally.[35] To overcome these biases, both Targets 2 and 3 make specific reference to terrestrial areas, inland waters, and marine and coastal areas, to indicate that protection and restoration should not be focussed solely on terrestrial areas. Target 3 expresses these as discrete sub-goals: at least 30% of 'terrestrial and inland water areas, *and* of marine and coastal areas' (emphasis added). The CBD Secretariat has expressed that the 30% target therefore applies independently in each domain.[36] However the wording of the restoration target is different with all ecosystem types clustered together ('terrestrial, inland water, and coastal and marine'), so it is unclear whether effort must be spread across ecosystem types, or whether action can be concentrated more heavily in one (e.g. terrestrial).[7]

Of the 36 NBSAPs we analysed, most made some reference to restoring different ecosystem types (n=30, 83%), and to protecting different ecosystem types (n=29, 80%). Only 12 NBSAPs were explicit about how restoration effort should be distributed across land and water, setting sub-targets for different ecosystem types. Again, the situation was slightly better in relation to Target 3, with 19 NBSAPs setting sub-targets for protected areas. For example, Hungary's NBSAP set out hectare targets for restoration of different ecosystem types (including wetlands, permanent grasslands, and forest ecosystems). Other NBSAPs make explicit commitments only in relation to specific areas: for example, France, Afghanistan and Burkina Faso set targets for wetlands.

However, we found many of the NBSAPs simply used wording such as 'land and marine' without explicitly outlining where efforts would be concentrated. It is therefore unclear from these NBSAPs whether effort is intended to be spread across land and water.

Inclusion of key definitions and baselines

In both Targets 2 and 3, there are key adjectives ('under effective' and 'effectively conserved and managed…') that are intended to ensure protection and restoration actions achieve their intended outcomes. It is impossible to evaluate whether the GBF Targets have been effectively achieved without articulation of some criteria for effectiveness, and a requirement for measurement against those criteria – either at the international level, or at the domestic level. Some have argued that if effectiveness is not measured, an activity should not be counted.[37]

Where there is a lack of detailed guidance at the international level, the interpretation of these terms at the domestic level is critical.[7]

In terms of Target 2, 'under effective' is not defined in the GBF. This means that 'under effective' will need to be interpreted at the country level,[7] and we acknowledge that this could be interpreted differently according to each country's unique circumstances. However, what is clear from our review is that very few of the NBSAPs surveyed even explicitly address the need to define 'under effective' restoration, and what it may look like in their country. Colombia and Libya's NBSAPs comes closest, by setting indicators for effectiveness such as 'proportion of surface area covered by natural forest', and 'number of ecosystems whose efficiency and natural balance have been restored annually' respectively. Some European country NBSAPs indirectly address this by referring to restoring ecosystems to 'good condition' (Norway), a 'favourable conservation status' (Luxembourg), or 'at least good ecological status' (Ireland). Australia's NBSAP comments on the importance of defining 'effective restoration' but does not articulate how it will be done domestically. This is problematic as, in the absence of guidance, either at the national level or through COP, this can be interpreted in very different ways. For example, there is evidence of habitat conversion occurring under the guise of 'restoration', which can have detrimental impacts on biodiversity.[38]

Target 3 provides some indication of what 'effectively conserved and managed' means in the subsequent text. That is, it is possible to read into Target 3 an interpretation that an 'effectively conserved and managed' area is one that is ecologically representative, well-connected, equitably governed, recognising indigenous territories, integrated into wider land- and seascapes, with sustainable use consistent with conservation, and the rights of indigenous peoples and local communities recognised and respected.

While we found discussion of effective conservation and management and/or its sub-elements in most NBSAPs, there was no NBSAP that comprehensively addressed all these components of 'effectively conserved and managed'. A total 24 NBSAPs (66%) addressed the need to evaluate effectiveness in some way, including through commitments to developing management standards or objectives, often at the site-specific scale. The UAE was the only NBSAP to directly refer to a metric for 'effectively conserved and managed', noting that protected area management will be evaluated against IUCN criteria. The treatment of the sub-elements varied across NBSAPs with 23 (64%) making some mention of 'connectivity' and 17 (47%) to notions of ecological representativeness. Only some NBSAPs referred to rights of indigenous peoples and equitable governance, but this aligned with countries that have larger indigenous populations (e.g. Australia, Canada, Norway). Few countries referred to the integration of protected areas into wider land- and seascapes, with Libya, Malaysia and Tonga being the only countries to directly address this. Notions of sustainable use were rarely covered in a country's treatment of Target 3, but most NBSAPs referred to this elsewhere in their NBSAPs and in relation to other GBF targets. A possible explanation for why the Target 3 sub-

elements are so poorly addressed across all the NBSAPs we reviewed is that there may be simply too many of them, making the target excessively complex for nations to deal with.[39]

Target 2 also implies the need for a baseline by referring to the restoration of 'degraded' ecosystems: an area cannot logically be classified as 'degraded' unless it is considered in comparison to an earlier, less degraded state.[7] While there is some debate regarding the appropriate framing of baselines,[40,41] they are critical to evaluations of success and effectiveness. Almost half (n=17, 47%) of the NBSAPs surveyed use the term 'degraded', but do not elaborate on what it means. Nine NBSAPs (25%) address this issue through committing to an inventory or baseline study of degraded sites: for example, Canada's NBSAP noted that Canada does not have a national definition for 'degraded' (nor 'effective') and aims to address this by establishing a baseline of degraded ecosystems. Similarly, the Republic of Korea committed to conduct a survey of land by 2027 to obtain a baseline of 'degraded' areas, and Norway has committed to clarifying areas that are 'degraded' by 2030. Of the remaining NBSAPs, Luxembourg refers to 'habitats and/or species with an unfavourable situation', and Tonga refers to 'damaged coastal and marine habitats' (and commits to a stocktake of them). The rest do not refer to a baseline for 'degraded' at all. Without a stocktake of 'degraded' areas within a country, it is unclear how quantitative commitments to restore 'degraded' areas – if indeed they have been made - can be operationalised.

Putting ambition into action

Fundamental to the success of an NBSAP is not just the setting of national level targets, but the operationalisation of them.[11] Yet, we found no country has set out clear criteria that can be operationalised for the identification and designation of particular areas to be restored, combined with information on actions that will be taken to implement restorative interventions. For restoration, most countries instead refer to the need for further work, including identification of degraded sites (Aruba, Canada, Curaçao, Libya, Norway, Republic of Korea, Tonga, Tunisia and UAE), development of an additional strategy or plan setting out further detail on restoration (Spain, Luxembourg, Japan, Ireland, UAE), setting of priorities and/or identification of sites for restoration (China, Austria, Canada, Italy, Suriname, Malaysia, Cuba, Republic of Korea), or clarifying the extent of sites for restoration (Norway, Australia, Tonga, Malta). The situation was more positive for protected areas, with NBSAPs referring to updating planning (Austria, Malta, Tonga) and priorities for new protected areas (Afghanistan), identifying areas for new protected areas (Republic of Korea, Malaysia, Suriname, Italy, Ireland), and analysing gaps (Cuba). Yet, Slovenia was the only NBSAP that spatially mapped proposed new protected areas, but it was not clear how protection would be established.

Overall, many of the NBSAPs can be divided into two broad categories: first, those that adopt ambitious, aspirational goals (e.g. 30% restoration and protection targets) but do not set out specific, measurable and realistic plans to achieve them. The Chinese and UAE NBSAPs are examples of this category. For example, the UAE boldly commits to restore 80% of

'ecologically significant' land and marine areas but does not define this key term. The plan for operationalising this consists of only a few dot points. In the parlance of 'SMART' planning theory as it has been modified for the conservation space,[5,39,42,43] these nations achieve the A (i.e. "Ambitious") component of good planning, but not the other components. The second category comprises NBSAPs that have less ambitious goals, but have outlined specific, measurable and realistic actions to achieve them. For example, the Canadian NBSAP does not make percentage commitments to restoration and protection, but sets out very detailed actions for governments to take, including setting benchmarks for 'degraded' as a precursor to setting targets. The Suriname NBSAP is another example of specificity, as it assigns responsibility to particular agencies, and provides estimated costs of every action. These nations do not meet the 'A' criteria in SMART but are closer to achieving the other components that make a good plan ("Specific", "Measurable", "Realistic" and "Timebound").

In the first category – those ambitious NBSAPs that lack detail – we are concerned an implementation gap may emerge, as some ambitious targets are obviously set without considering what is possible. For example, a recent study highlighted that Indonesia has previously pledged to restore 600,000ha of mangroves to support the Sustainable Development Goals. However, there is likely only ~200,000ha of mangroves in Indonesia that are suitable for restoration.[44] Given that very few nations use the specific qualitative language from the GBF targets, similar mistakes may occur with these ambitious nations.

The second category could give rise to an ambition gap. Of the 36 NBSAPs surveyed, only 14 have agreed to protect at least 30%, and six have agreed to restore at least 30%. Other countries have set more modest goals or have not quantified their ambition as a percentage. It is acknowledged that the GBF targets are collective goals and theoretically they could be achieved at the global level by some countries doing less while others do more. However, only a handful have used the terminology of 'at least 30%', and these countries may need to overshoot 30% domestically by a significant margin to compensate for the more modest ambition of the remaining NBSAPs. Furthermore, if a developed country has set a lower target due to feasibility reasons (e.g. they do not have 30% of territorial areas that can actually be protected), this should be made explicit, and these countries could also potentially outline how they can contribute to achieving the 30% goal at the global level.

These emerging gaps draw parallels with the international climate change legal framework, where there are gaps between the agreed-to target, and the mechanisms to achieve this target. For example, the Paris Agreement set an ambitious target (i.e. stablishing global temperature increase to 2°C with an aspirational goal of 1.5°C), but the ability to achieve this depends upon countries both *agreeing* to take the necessary domestic action to achieve this target in their Nationally Determined Contributions (NDCs), and then *actually taking* that action. This has resulted in a so-called 'emissions gap', defined as 'the discrepancy between pledged GHG emission reductions and the reductions required to align with the Paris Agreement'.[45] In particular, UNEP's most recent emissions gap report found that commitments currently made

in unconditional NDCs will, if actioned, set society on a trajectory towards an estimated 2.6-3.1°C of warming – a clear gap from the 2°C target. [45] There is also an 'implementation gap', which is the difference between commitments that have been made in NDCs – which are already insufficient – and actual national policies in place to address climate change.[46] As it appears that CBD signatory nations are following a similar pathway in their efforts to abate the biodiversity crisis, potential lessons can be learnt from the climate process. In the climate context, significant effort has been afforded to identifying which nations are leading and lagging in both setting and operationalising their NDC goals,[47,48] and which countries continue to detract from the achievement of climate targets through their emissions.[49] As this has led, in part, to nations changing their approach, similar efforts should be encouraged in the biodiversity realm to hold nations to account for their NBSAPs.

CONCLUSION

With COP-16 now behind us and only five years remaining until the intended realisation of the GBF targets, the NBSAPs analysed here paint a bleak picture of the prospects for achieving Targets 2 and 3.

As it stands, very few countries have committed to the quantitative restoration target, and only just over half have quantified their protection target. Of potentially more concern is the attention to the qualitative aspects and key definitions in Targets 2 and 3 within NBSAPs, which varied considerably. Our analysis points to a significant chance of nations repeating past mistakes, where the quality components of area-based Aichi Targets were consistently ignored.[27,50,51] In addition, the lack of engagement with the key terminology in Targets 2 and 3, including around effectiveness and its sub-elements and definitions of 'degraded', means that monitoring and reporting of actual outcomes of Target achievement will be extremely difficult. Without greater commitments to these aspects of Target 2 and 3, their full achievement seems unlikely. We urge countries that have not completed their NBSAPs – and the COP where appropriate - to engage with these definitional aspects by compiling a baseline of degraded ecosystems at the country level and setting more detailed plans at a country level as to what constitutes 'effective' protection and restoration.

We acknowledge that our sample size is relatively small, as only 36 countries submitted a revised NBSAP prior to COP-16 – despite almost 200 countries agreeing to do so. It may be the case that the NBSAPs considered here are not reflective of what other nations are likely to submit. But given these nations have taken the CBD's call seriously and submitted their NBSAP before COP-16, this seems unlikely. Lessons can be learnt from our analysis for those nations still completing their updated NBSAP, which include the need for far more specificity in how they define key terms in the targets and how they intend (or not) to meet the specific elements within the targets. Self-assessing against the questions we asked in our supplementary data file may be a useful exercise for national policy-makers as they draft their plans, as will reviewing updated NBSAPs to determine their strengths and weaknesses.

The broader interpretation of our results also begs the question as to why nations agree to bold international commitments, such as those outlined in the GBF, and then have little follow through in their domestic commitments aimed at achieving them? It may be that some nations find the GBF targets unachievable within their timeframe, and as others have argued, it simply may be easier to agree on a target so ambitious that it is clearly unachievable as highly aspirational targets can reduce the pressure of accountability.[42] This may explain why there is a breakdown between countries making ambitious commitments in their NBSAPs, without outlining clear plans to achieve them. More cynically, perhaps leaders of nations know that they will not be held to account for making international commitments as there is no punishment for failure.

The reality is that nearly 200 nations have committed to the GBF's vision of a world of living in harmony with nature where "by 2050, biodiversity is valued, conserved, restored and wisely used, maintaining ecosystem services, sustaining a healthy planet and delivering benefits essential for all people." Given how important the actions of nations are to helping achieve the overall ambition of the GBF,[52,53] and the fact that humanity is running out of time,[54] we strongly urge countries that have not yet updated their NBSAPs (and even those nations that have completed their plans) to engage fully with both ambition and specific, measurable and realistic goal-setting. We also urge the wider conservation community to hold nations to account when considering their international commitments.

METHODOLOGY

As the literature on NBSAPs is limited,[55] there is no established methodology for considering their content. Of the published literature, most relates to mainstreaming, as the CBD requires that NBSAPs mainstream biodiversity into planning across all sectors.[9,15,56] Some of these analyses focus on a single jurisdiction,[56] or several jurisdictions,[15] with one quantitative analysis of 144 NBSAPs undertaken to understand the extent to which biodiversity was being mainstreamed across economic sectors.[9]

There have been some broader quantitative and qualitative analyses of NBSAPs undertaken in the academic literature,[10] by the UNEP[57,58] and through the CBD reporting mechanisms,[28,59] including mapping of country NBSAPs against Aichi targets. We have drawn on elements of these reviews in designing our methodology.

We have chosen to focus on Targets 2 and 3 as two of the most prominent targets in the GBF.[5] Limiting our analysis to two targets allowed us to consider each of the constituent elements of the targets in detail and assess whether and how NBSAPs have addressed each of these elements and how they will be actioned at the national level. This is especially important as

previous analyses noted that countries focussed on quantitative elements of targets (in that case, the Aichi targets), and gave less attention to the qualitative aspects.[59]

We broke Targets 2 and 3 down into their constituent elements and sub-elements (see Supplementary data file), using the specific language of the Targets. We determined that each Target broadly consists of quantitative elements, qualitative elements, mention of land and water, and key terms and baselines. We therefore clustered our analysis around these four areas of analysis, broken into sub-elements. Further, we added a fifth broad area of analysis related to whether there are any explicit actions stated in the NBSAP for achieving the targets. These sub-elements are the columns of the supplementary data file, with each row assessing a country's NBSAP against these sub-elements.

We supplemented this with some principles of SMART target theory. 'SMART' target (initially conceived as 'Specific, Measurable, Assignable, Realistic and Timebound') theory emerged in the 1980s in the management context,[60] and has since been adopted in many disciplines. While the 'A' of SMART target theory is now more generally recognised as 'achievable' rather than 'assignable', a 2002 review notes that there has been significant 'acronym drift', and there are 9 different words used in the literature to cover the 'A' in 'SMART'.[61] Indeed SMART target framing has permeated the conservation context with its own unique formulation as 'Specific, Measurable, Ambitious, Realistic and Timebound'.[5,39,42,43,62] We have used this SMART target theory as adapted for the conservation context to assess whether NBSAPs have both made ambitious commitments in line with the intention of the GBF, while also setting out clear actions to achieve these commitments (the Specific, Measurable and Realistic elements).

In previous analyses of NBSAPs undertaken by the CBD Secretariat, it was observed that only approximately half of countries explicitly mapped their national commitments against Aichi targets. Where mapping was not done, the CBD Secretariat had to cross-reference NBSAP content against the targets.[28] We also found that only half of the NBSAPs reviewed explicitly mapped their commitments against the GBF targets. For this reason, subjective judgements were made in the remaining 18 NBSAPs regarding which content related to Targets 2 and 3 (see supplementary data file for detailed breakdown). We note this as a limitation, as this material might be categorised differently by a different data analyst.

We note that it has previously been observed that developing countries are more likely to map their NBSAPs against Aichi targets.[59] We did not discern any correlation here, but did note that many countries, both developed and developing, seemed to retrofit their existing policies and commitments to include GBF targets rather than generate new specific policies to meet the new targets.

We downloaded all (n=36) NBSAPs submitted before the commencement of COP-16 (21 October 2024) from the Convention on Biological Diversity Online Reporting Tool

(https://ort.cbd.int/dashboard#0.4/0/0) and translated them into English using Google Translate (where necessary). These NBSAPs were then analysed and assessed by both authors independently using the criteria outlined in supplementary data file. For each country and each element and sub-element, we wrote a short description in our results table describing whether and how the country had addressed the element/sub-element. These results were then integrated into a combined table, with any discrepancies in analysis resolved by discussion and agreement. Very few points of disagreement emerged, although the authors had, in some NBSAPs, included slightly different information in Column W ('Are there explicit actions outlined to meet this target?). Where variations occurred, the authors would revisit an NBSAP together, discuss the content, and agree on what content to include in the data table.

We acknowledge several limitations of our analysis. First, for reasons already discussed, we are focussing only on Targets 2 and 3. Second, we are only looking at NBSAPs submitted after the GBF was adopted, and before the commencement of COP-16, which means our sample size is limited. Like Prip and Pisupati's preliminary analysis,[57] we found utility in providing a preliminary analysis of progress to date during a critical time in the implementation phase of the GBF, but this does mean it is not a full and comprehensive analysis. We also note that some countries chose to submit national targets ahead of COP-16 where they were not in a position to submit an entire revised NBSAP. We have not included these in our analysis, as they cannot be analysed qualitatively at the same level of detail as the NBSAPs. Third, many NBSAPs were written in languages other than English and have been translated using Google Translate. It is acknowledged that nuance may have been lost in this process, which is important as we are looking at the targets qualitatively. Finally, we acknowledge that our review is limited to material in NBSAPs only, and there may well be national-level documents providing more detail of commitments and plans to operationalise them.

DATA AVAILABILITY

n/a

CODE AVAILABILITY (IF RELEVANT)

n/a

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AUTHOR CONTRIBUTIONS STATEMENT

J.B. and J.E.M.W. contributed to conceptualisation of the project, methodology and investigation, writing, editing and reviewing.

COMPETING INTERESTS STATEMENT

The authors declare no competing interests

TABLES

Table to be included as supplementary data file

FIGURE LEGENDS/CAPTIONS (FOR MAIN TEXT FIGURES)

Figure 1. Countries that submitted revised NBSAPs prior to COP-16.
This depicts the countries/jurisdictions that submitted a revised NBSAP prior to 21 October 2024 and the commencement of COP-16. Note the European Union has also submitted an NBSAP, and it is considered as one of our 36 NBSAPs. Taiwan has traditionally submitted its own NBSAP and is therefore treated separately to China.

Figure 2. Criteria for assessment of NBSAPs.
This summaries the broad criteria and elements used to assess each NBSAP's inclusion of Targets 2 and 3. See the supplementary data file for a detailed breakdown of the sub-elements of each Target, and the assessment of each country against them.

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