NUS National University of Singapore | Centre for Nature-based Climate Solutions
Faculty of Science

EYE ON THE PLANET

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Mainstreaming Nature into Business Decision Making?

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Key takeaways

1) The TNFD recommendations and guidance help organizations understand their interface with nature and manage their nature-related dependencies, impacts, risks and opportunities.

2) The newly produced whitelabel training material from TNFD and CISL allows Institutes of Higher Learning (IHLs) to adapt and contextualise the training to suit unique audiences and socio-economic conditions in different countries.

3) In recent years, Singapore has been proactive in adopting sustainability reporting and thus, now is an opportune time for organisations to put in place infrastructure and strategies to include nature-related issues in their sustainability reports.

4) A regional Train-the-trainer (TTT) was conducted at the National University of Singapore from 7-9 May to enhance awareness and capacity of academics and practitioners in this domain, and equip them with the skills to provide trainings on TNFD and nature-related issues in the region.

Introduction

When 196 countries signed the Kunming Montreal Global Biodiversity Framework at the Convention for Biological Diversity (CBD) COP 15 in Montreal, Canada in December 2022, there was genuine optimism that the world would have an analog to the Paris Agreement on the biodiversity front. Some of its 23 targets, such as Target 3 (aka 30 by 30), received more media attention in the subsequent years. Behind the scenes though, there has been some genuine progress on *Target 15 - Businesses Assess, Disclose and Reduce Biodiversity-Related Risks and Negative Impacts*.

Following the precedence of the Task Force on Climate-Related Financial Disclosures (TCFD) in mid 2010s, whose recommendations are now consolidated into International Sustainability Standards Board (ISSB) IFRS S1 and S2[1], the Taskforce on Nature-related

[1] International Financial Reporting Standards Foundation. (2023, July). Foundation welcomes TCFD responsibilities from 2024. IFRS. Retrieved from https://www.ifrs.org/news-and-events/news/2023/07/foundation-welcomes-tcfd-responsibilities-from-2024/

Financial Disclosures (TNFD) published its 14 recommendations in September 2023. The recommendations were based on those from TCFD and they are designed to be compatible with other major sustainability reporting frameworks, such as GRI and ESRS[2]. Since the release in September 2023, over 500 organisations and over USD 17 trillion in assets under management (AUM) have committed to reporting their nature-related issues aligned with the TNFD recommendations.[3]

Seizing on the recent demand and momentum, white label training materials, based on TNFD's recommendations and guidance, have been co-developed by the TNFD Secretariat and Cambridge Institute for Sustainability Leadership (CISL) for Institutes of Higher Learning (IHLs) for training various target audiences and needs. To facilitate the uptake, the first-ever Train the Trainer (TTT) programme was conducted as a pilot in Cambridge, UK from 28-30 Jan, 2025, with the hope to shift the TNFD recommendations from awareness to widespread adoption.

Why the TNFD's 14 recommendations are important

Our society, economies, and financial systems are deeply intertwined with nature, rather than existing independently. Robust and indisputable scientific evidence now shows that natural habitats are deteriorating globally and biodiversity declining at an unprecedented rate in human history[4]. Indeed, Costanza et al. (2017) estimated the value of global ecosystem services at approximately $125 trillion per year[5] of which around $6.3 trillion is being lost from land degradation and deforestation. This negative externality to society poses significant risks to businesses, capital providers, financial systems, and economies all over the world. A study by Richardson et al. (2023) found that the world has crossed six of the nine planetary boundaries that define a safe operating space for humanity[6]. Climate, nature and biodiversity risks are intensifying in both severity and frequency in recent years.

Fortunately, central banks and financial institutions are increasingly recognising the loss of nature as a systemic risk to financial systems and economies. Some governments are also responding through land use policy and fiscal measures, such as debt for nature swap. But despite these emerging threats, most companies and capital providers remain inadequately prepared to tackle the scale of nature loss[7]. The construct of 'nature' has

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[2] Taskforce on Nature-related Financial Disclosures. (2023, September). *TNFD Recommendations*. TNFD. Retrieved from https://tnfd.global/tnfd-publications/

[3] Taskforce on Nature-related Financial Disclosures. (2024, October 25). *Over 500 organisations and $17.7 trillion AUM now committed to TNFD-aligned risk management and corporate reporting*. https://tnfd.global/over-500-organisations-and-17-7-trillion-aum-now-committed-to-tnfd-aligned-risk-management-and-corporate-reporting/

[4] van Goethem, T., & van Zanden, J. L. (2021). Biodiversity trends in a historical perspective. *OECD iLibrary*. https://www.oecd-ilibrary.org/social-issues-migration-health/how-was-life-volume-ii_2c94883d-en

[5] Costanza, R., de Groot, R., Sutton, P., van der Ploeg, S., Anderson, S. J., Kubiszewski, I., ... & Farber, S. (2017). Twenty years of ecosystem services: How far have we come and how far do we still have to go? *Ecosystem Services, 28,* 1-16. https://doi.org/10.1016/j.ecoser.2017.09.008

[6] Richardson, K., Steffen, W., Lucht, W., Bendtsen, J., Cornell, S. E., Donges, J. F., *et al.* (2023). Earth beyond six of nine planetary boundaries. *Science Advances, 9*(37), eadh2458. https://doi.org/10.1126/sciadv.adh2458

[7] Godemer, M. (2024, May 8). *Nature: The new risk shaping sustainable finance policies*. BloombergNEF. https://about.bnef.com/blog/nature-the-new-risk-shaping-sustainable-finance-policies/

grown from corporate social responsibility into a critical element of strategic risk management, alongside climate change. The TNFD recommendations are designed to assist organizations in responding to such escalating risks.

TNFD has created a framework comprising 14 recommendations to assist organizations in identifying, assessing, managing, and disclosing their interface with nature. Structured around four pillars—Governance, Strategy, Risk and Impact Management, and Metrics and Targets. The framework emphasizes the importance of board management oversight aligned with scientific rigour in nature-related matters. The framework carries over all 11 TCFD recommended disclosures into the nature context and adds three additional recommended disclosures. The additional disclosures highlight the location-specific nature of biodiversity, including the need to disclose priority locations of material risks and opportunities. It encourages organizations to evaluate how their operations interact with natural ecosystems through, for example, direct and indirect activities, both upstream and downstream along their value chains. Another notable addition beyond the TCFD's 11 recommendations is the focus on human rights and stakeholder engagement, particularly with Indigenous Peoples and local communities (IPLC)[8], whose role as stewards of the land is increasingly acknowledged nowadays at both local and global levels. These enhancements aim to integrate considerations about nature and biodiversity issues into corporate strategies and risk management, fostering transparency and informed decision-making around them.

Southeast Asia is one of the most biodiverse regions in the world. Home to approximately 20% of all plant species and 12% of all terrestrial species[9], the region's most vulnerable 50 million people are directly dependent on ecosystem benefits worth approximately $1 trillion annually[10]. Fortunately, Asia is also the continent with the highest uptake of the TNFD recommendations. By October 2024, more than 200 organisations had committed to TNFD-aligned risk management and reporting[11]. Singapore, being a financial hub in the region, plays an outsized role in determining the near-to-middle term trajectory of uptake in nature-related measurement and reporting.

City Developments Limited (CDL) has taken a pioneering role by becoming the first company in Singapore to publish TNFD-aligned disclosures in its 17th Integrated

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[8] Taskforce on Nature-related Financial Disclosures. (2023, September 18). *TNFD Recommendations*. TNFD. Retrieved from https://tnfd.global/tnfd-publications/

[9] WWF. (2018). *The Living Planet Report 2018: Aiming Higher*. World Wildlife Fund. https://www.worldwildlife.org/publications/living-planet-report-2018

[10] Brander, L. M., & van Beukering, P. (2013). *The Economics of Ecosystems and Biodiversity for Southeast Asia (ASEAN TEEB) Scoping Study*. ASEAN Centre for Biodiversity. http://lukebrander.com/wp-content/uploads/2013/07/ASEAN-TEEB-Scoping-Study-Report.pdf

[11] Taskforce on Nature-related Financial Disclosures. (2024, October 25). Over 500 organisations and $17.7 trillion AUM now committed to TNFD-aligned risk management and corporate reporting. TNFD. Retrieved from https://tnfd.global/over-500-organisations-and-17-7-trillion-aum-now-committed-to-tnfd-aligned-risk-management-and-corporate-reporting/

Sustainability Report 2024[12]. Furthermore, CDL has secured a landmark S$400 million sustainability-linked loan from DBS Bank, guided by targets aligned with the TNFD recommendations[13]. This achievement marks a significant milestone in advancing nature conservation and sustainable development within the financial sector in Singapore. More broadly, United Overseas Bank (UOB), Olam Group's subsidiaries—Olam Agri and Olam Food Ingredients—and Oceanomy, a consultancy firm, have also pledged to publish TNFD-aligned disclosures as part of their annual corporate reporting for financial years 2023, 2024, or 2025[14].

Although the private sector seems to be doing the heavy lifting on the nature front, the Singapore government has also offered several grants and schemes to help with sustainability reporting. For instance, Enterprise Singapore (EnterpriseSG) has been providing the Enterprise Financing Scheme (Green) since October 2021 to help Singapore companies to develop green technologies and solutions. Economic Development Board (EDB) and EnterpriseSG jointly launched a new sustainability reporting grant for large companies with annual revenue of $100 million and above to cover 30 % of qualifying costs in their first sustainability report aligned with ISSB standards[15]. Private companies could take advantage of these existing government grants to put in place procedures and build infrastructure to future proof themselves, not just from climate-related reporting, but also for nature-related disclosures, too.

Nevertheless, the capacity gap still exists, with a study by the National University of Singapore (NUS) and Kering in January 2025 indicating that while 76% of Singaporean companies address nature-related issues in their sustainability reports, only 14% have aligned with the TNFD framework[16]. This suggests significant potential for broader adoption of the TNFD recommendations among Singaporean businesses.

Because both the public and private sector in Singapore increasingly embrace sustainability reporting, an opportune window has opened for trainers and academics alike to push for the inclusion of nature-related disclosures in sustainability reporting. To address the capacity gap, the TNFD Secretariat, in partnership with the Cambridge Institute for Sustainability Leadership (CISL), has created the aforementioned 'white label' training materials to upskill practitioners and executives in corporates and financial

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[12] City Developments Limited. (2024). *Integrated Sustainability Report 2024: Zero in on Nature*. https://cdlsustainability.com/pdf/CDL_ISR_2024.pdf

[13] The Straits Times. (2024, October 25). City Developments takes out $400 million sustainability-linked loan from DBS. The Straits Times. Retrieved from [https://www.straitstimes.com/business/companies-markets/city-developments-takes-out-400-million-sustainability-linked-loan-from-dbs]

[14] Business Times. (2024, October 25). UOB, CDL, Olam among Singapore companies committed to nature disclosures. Business Times. Retrieved from [https://www.businesstimes.com.sg/esg/uob-cdl-olam-among-singapore-companies-committed-nature-disclosures(https://office.com?path='78]

[15] Enterprise Singapore. (2024, March). Supporting businesses in the transition to a low-carbon and sustainable future. Enterprise Singapore. Retrieved from [https://www.enterprisesg.gov.sg/-/media/esg/files/media-centre/media-releases/2024/march/mr01224_supporting-businesses-in-the-transition-to-a-low-carbon-and-sustainable-future.pdf]

[16] The Independent. (2024, October 25). Singapore companies lagging in TNFD framework adoption, study finds. The Independent. Retrieved from [https://theindependent.sg/singapore-companies-lagging-in-tnfd-framework-adoption-study-finds/?utm_source=chatgpt.com]

institutions. They have identified significant gaps in competency in the market in identifying an organisation's dependencies and impacts on nature, which in turn, manifest as risks and opportunities for corporations and financial institutions. The white labeltraining materials are designed to fill this gap by providing customisable and cost-effective training materials that fit the specific needs of trainers and different target audiences, thereby providing a framework for IHLs and training providers to scale up training and capacity building.

One main objective of the training is to convince all stakeholders to adopt a consistent language system (terminologies for nature aligned with both TCFD and ISSB). The reason is that the nature-business interface is complex and constantly evolving; thus, communication needs to be clear, consistent, and effective to promote engagement at an appropriate level. The bulk of the training material is centred around the LEAP (locate, evaluate, assess, and prepare) approach and scenario analysis that help organizations embark upon longer-term nature-related strategic planning across TNFD's 14 recommendations spanning four pillars. Lastly, the training materials have been created for three core audience categories - board members, senior executives, and practitioners – with each learning journey designed to be flexible to meet the needs of delivery, audience maturity and preferred training methodologies.

Areas of concerns

Nevertheless, some technical and policy gaps persist. First and foremost, some indicators and metrics on nature are still in developmental stages. Unlike a unit of carbon dioxide equivalent, which has become a widely accepted measure of climate change, there isn't a contemporary universally-accepted standardized unit of nature or biodiversity to measure and report[17]. TNFD lays out core disclosure metrics mapped to 14 core global indicators, which should be reported by all organizations. In addition, it has created a measurement architecture that also has built-in sector-specific disclosure metrics and additional disclosure metrics, adaptable to each organization's needs[18]. Despite this, corporates and investors alike are wary of prematurely adopting a measurement framework or methodology, thereby risking non-compliance or non-alignment with the emerging policies, standards, and developments. Until the TNFD itself becomes subsumed under IFRS S3 or another compliance standard, the voluntary adoption rate may take time to tick up significantly. To this end, the TNFD continues to work with the IFRS Foundation to support the ISSB's ongoing research on biodiversity, ecosystems and ecosystem services (BEES)[19].

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[17] Milner-Gulland, E. J., & others. (2024). What is a unit of nature? Measurement challenges in the emerging biodiversity credit market. *Proceedings of the Royal Society B: Biological Sciences, 291*(1995), 20242353. https://doi.org/10.1098/rspb.2024.2353

[18] Taskforce on Nature-related Financial Disclosures. (n.d.). *Metrics*. https://tnfd.global/metrics/

[19] Taskforce on Nature-related Financial Disclosures. (n.d.). IFRS Foundation and TNFD collaboration to provide capital markets with high-quality nature-related information. TNFD. Retrieved from [https://tnfd.global/ifrs-foundation-and-tnfd-collaboration-to-provide-capital-markets-with-high-quality-nature-related-information/]

Data availability and accuracy is another challenge. Biodiversity data is inherently location-specific, rendering standardization and comparison among different biomes and ecosystems difficult [20]. Although there is a plethora of tools, indicators, and databases that supposedly help with biodiversity measurements, some powerful analytic tools and granular data sets only exist in the form of priority software and derived layers hidden behind paywalls [21]. In response to feedback from the market on data challenges, TNFD is currently working on a roadmap for action, including nature data value chain enhancements and a proposal for a Nature Data Public Facility [22]. Compounding the confusion are the emergence of evidence-based target setting bodies, such as Science Based Targets Network (SBTN), an analog of Science-based Targets Initiatives (SBTi) but which specialises in nature and increasingly acting as an authoritative body in this domain. In some cases, such target setting bodies and local/national-level targets, such as NBSAP targets, do not align with organizational strategies and capacities, further complicating the performance measurement process and slowing down progress. As the markets mature and data tools and initiatives become mainstream, there will be more integration of nature issues into business operations, decision making, and reporting.

Finally, the Singapore government has updated 20 targets in its National Biodiversity Strategy and Action Plan (NBSAP) on Oct 21, 2025, on the eve of the commencement of Convention of Biological Diversity (CBD) COP 16 in Cali, Colombia[23]. Despite Singapore's public and private sector efforts in sustainability reporting front, one notable exception in the new NBSAP targets was an update on Target 15[24]. Without government's leadership and policy synergy, nature reporting is still expected to struggle to gain traction in private sector for the next few years.

Looking ahead

As companies and investors in the APAC region look beyond ESG and consumers demanding nature-positive actions, expectations on corporate action on nature-related risks and dependencies will continually evolve. At the global level, TNFD continues to work with the IFRS Foundation and support the ISSB's ongoing work to enable nature-related financial disclosures for use by capital markets, while CBD and environmental NGOs will collectively call for governments to introduce disclosure requirements by 2030

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[20] Thompson, M. S. A., Couce, E., Webb, T. J., Grace, M., Cooper, K. M., & Schratzberger, M. (2021). What's hot and what's not: Making sense of biodiversity 'hotspots'. *Global Change Biology, 27*(3), 521–535. https://doi.org/10.1111/gcb.15443

[21] Burgess, N. D., et al. (2024). Global metrics for terrestrial biodiversity. *Annual Review of Environment and Resources, 49*, 673-709. https://doi.org/10.1146/annurev-environ-121522-045106

[22] Taskforce on Nature-related Financial Disclosures. (n.d.). Enhancing market access to global nature data. TNFD. Retrieved from https://tnfd.global/enhancing-market-access-to-global-nature-data/

[23] The Straits Times. (2025, October 21). S'pore submits 20 targets on nature conservation to UN ahead of COP16 biodiversity conference. The Straits Times. Retrieved from [https://www.straitstimes.com/singapore/s-pore-submits-20-targets-on-nature-conservation-to-un-ahead-of-cop16-biodiversity-conference]

[24] Convention on Biological Diversity. (n.d.). National targets. Convention on Biological Diversity. Retrieved from [https://ort.cbd.int/national-targets?countries=sg]

for corporate reporting of nature-related dependencies, impacts and risks in line with KMGBF Target 15.

The developments come at an opportune time in Singapore because the Accounting and Corporate Regulatory Authority (ACRA) has already mandated all Singapore Exchange (SGX) listed companies to disclose their Scope 1 and Scope 2 emissions by 2025 and large non-listed companies with annual revenues of at least $1 billion and total assets of at least $500 million by 2027[25]. Locally, some companies will take advantage of the existing government grants to build up infrastructure and capabilities in sustainability reporting, including in nature-related issues.

To this end, NUS organized a regional Train-the-trainer (TTT) in May 2025 to bring the TNFD approach to academics and training providers from both public and private sectors in Singapore and the wider Asia Pacific Region. The workshop, attended by 60 participants from mainland China, Hong Kong, Korea, Japan, India, Indonesia, Malaysia, Philippines, Thailand, Vietnam, and Singapore, took place at University Town on NUS campus from 6-8 May, 2025 during the Ecosperity week. The three-day workshop was delivered jointly by technical experts from the TNFD Secretariat and NUS academics. The workshop also included experience sharing by industry practitioners, and interactive case study exercises where participants worked in groups to conduct a LEAP assessment on a hypothetical business. All in all, the event built the capacity and confidence of trainers, who are now equipped to adapt the white label training materials to their regional context and deliver training on TNFD approach and guidance for their organisations.

[25] Singapore Exchange Regulation. (2024, October 25). Joint Media Release ACRA-SGX RegCo on Mandatory Climate-related Disclosure. Singapore Exchange Regulation. Retrieved from [https://links.sgx.com/FileOpen/Joint%20Media%20Release%20ACRA-SGX%20RegCo%20on%20Mandatory%20Climate-related%20Disclosure_FINAL.ashx?App=Announcement&FileID=790226]