

# A survey of the field of Environmental Finance

2 PM

27<sup>th</sup> June 2023

Joint Graduate School of Energy and Environment

King Mongkut's University of Technology Thonburi

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**Dr. Karl Nolles**

**Director**

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Biodiversity, Natural Capital

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# This week at JSGEE

Going to be a busy week....

• ~~Monday 26<sup>th</sup> June~~

- ~~Challenges in the Australian Electricity Market~~

• **Tuesday 27<sup>th</sup> June ← THIS LECTURE.**

- Survey of Environmental Finance

• **Wednesday 28<sup>th</sup> June (AM)**

- Introduction to the Taskforce for Nature related Financial Disclosures (TFND)

• **Wednesday 28<sup>th</sup> June (PM)**

- Market examples from biodiversity markets

• **Thursday 29<sup>th</sup> June (AM)**

- Global energy transformation issues, and the IEA reports

# Who am I to be talking about all this ?

- {Lost money in 1995 on a very very early carbon fund...}
- Australian Financial Markets Association Electricity and Environmental Products Policy Officer
  - Developed a lot of data services and documentation
- Senior Lecturer / Founding Director University of New South Wales Centre for Energy and Environmental Markets
- Director in Macquarie Bank Climate Change team
- CEO of NextGen Brokerage

## AND TODAY

- Visiting Professor JGSEE
- Founder and Director, Aton Consulting
  - Currently (among other things) advising NSW Department of Environment and Australian Grains Research Development Corporation
- Co-founder of Skjander Partners
  - Biodiversity and carbon investment management

### Our Team

Dr Karl



Dr Karl (Karl) Nollie is an experienced energy and finance executive and academic, having held company directorships and CEO/COO/COO positions.

He founded Aton Consulting in 1995, and has administered between consulting and employed roles including in the Macquarie Bank Climate Change and Utilities teams and Macquarie Global Investments (2007-15), as a Senior Research Fellow in the Faculty of Business at UNSW from 2008-2007 (and as a Visiting Director of the UNSW Centre for Energy and Environmental Markets), and with the Northern Territory Government (2010-20).

He has a PhD in Energy Economics and Electrical Engineering from the University of New South Wales.

He has been an investor/founder/inventor in six startups across past two years: energy trading, blockchain, and agritech, and a compliance adviser to various financial services companies.

In 2019 he was appointed as a Visiting Professor at the Joint Graduate School of Energy and Environment at King Mongkut University in Bangkok.

Since 2020 he has been a retained adviser to the NSW Department of Environment regarding ESG / Sustainable Finance and Biodiversity markets.

LinkedIn

Dr Liz



Dr. Elizabeth (Liz) Deagney is an experienced economic analyst and program manager, having held positions across the government and private sectors over the past 20 years. Before moving into consulting Liz led the Advanced Analytics team within the New South Wales Department of Planning and the Environment, steering the state's natural capital agenda and helping to secure more than \$1B in funding for environmental projects.

Liz holds degrees in Advanced Science and International Economic Development, and a PhD in Statistical Ecology from the University of New South Wales.

Liz has designed and implemented large-scale projects focusing on productivity and efficiency in primary industries in Australia and the Pacific, including the farming, fisheries and forestry sectors.

She has extensive experience in delivering economic modelling, market valuation and cost benefit analysis for major programs and investments.

Liz has an appointment as an Adjunct Senior Lecturer at Southern Cross University.

Liz has received research, consultation, and performance awards from the NSW Government, the University of NSW, the Royal Zoological Society and the Australian Society for Fisheries Biology.

LinkedIn

Dr Brian



Dr Brian Scott is the **Adrian Bead Associate Professor of Environmental Studies and Economics** at Washington College, Maryland, and has held a joint appointment to the Department of Economics and the Department of Environmental Science since 2007. He has a PhD in Economics from the University of Illinois, Chicago.

His teaching and research interests include institutions, rules, and assessing the viability of environmental and pollution markets, as well as volunteerism and charitable giving. He has received grants from the Illinois Environmental Protection Agency, the US Department of Agriculture, and the Australian Commonwealth Scientific and Industrial Research Organisation (CSIRO) to study the Chicago Cap and Trade using program, the viability of farmers entering in carbon sequestration markets, and farmers participating in nitrogen sequestration markets.

He has worked with Dr K in various projects and businesses since they were former Aton PhD students several years ago.

LinkedIn

[almost, but not yet a Dr] Stuart



Stuart Martin has over 20 years experience in investment management (particularly in the real estate sector), with progress such as Lead Loans, AER Asset and First State Investments (London 2008-2011). Stuart holds a Bachelor of Commerce (Land Economics), and also holds a Master of Sustainability.

Stuart's recently submitted PhD thesis examines the integration of natural capital accounting into agricultural decision making. His research was conducted in the Institute for Sustainable Futures at the University of Technology Sydney, and was part of the Food Agility CRC.

Stuart was Co-Founder of Open Resilient Funds Management (and was the Responsible Manager under the APFL), a group established to develop agricultural investments with environmental dividends.

LinkedIn

## Skjander Partners



**Daniel Brown, Director**  
San Francisco, United States & Sydney Australia.  
Dual US/Australian citizen

- Macquarie Group: Global Investments Division management team focused in agriculture, environment, and real assets.
- Leadership team of OFX(Macquarie company) from post acquisition to ASX IPO.
- Principal Investment Manager for Queensland government in North America facilitating \$450mUSD in foreign direct investment.
- Deep connections to Silicon Valley and successful track record of taking growth firms to acquisition/IPO.
- Bachelors of Science Business Administration, The Citadel, USA 2003. Graduate of Law, Sydney Law School, University of Sydney, 2010. Columbia University - Graduate Private Equity & Venture Capital Program.
- FINRA / Securities Exchange licensure - Series 7, 24, 53, 6, 66, 63.



**Jerry Joyce, Director**  
Operations, Sydney, Australia. Dual US/Australian citizen

- Head of Supply Chain and Operations Red Bull North America
- COO of Fiji Water
- COO of Beyond Meat
- Head of Procurement at The Wonderful Company, the largest agriculture operation in North America
- Head of Supply Chain at Wonderful Citrus.
- MBA Rotterdam School of Management, Erasmus University, Netherlands, Bachelor of Modern Languages, The Citadel, USA, Six Sigma Black Belt Certification, fluent in Spanish and German.

SKJANDER PARTNERS



**Dr. Karel (Karl) Nollie, Director**  
Environment & Natural Capital, Sydney, Australia

- Macquarie Group: Founding director in Macquarie Capital Utilities, Renewables and Climate Change business. Deal list of approximately \$2.4B including across Water, Renewables, Carbon/Environmental instrument trading.
- CEO of NextGen Energy/Environmental Brokerage.
- Head of Strategy for Clean Energy Derivatives Corporation.
- Senior Research Fellow & Founding Director UNSW Centre for Energy & Environmental Markets and Visiting Professor Saint Graduate School of Energy and Environment, King Mongkut University of Technology Thailand.
- Consultant with NSW Department of Environment on green finance.
- Hons. Electrical Engineering, University of Melbourne (1992) PhD (Economics & Electrical Engineering), University of New South Wales (2007).



**Anthony Hogarth, Director**  
Legal, Sydney, Australia

- Macquarie Group - Associate Director/lawyer within Macquarie Infrastructure and Real Assets division advising on funds and asset management across the infrastructure, agriculture and cleantech/renewable energy sectors.
- Supercars Australia - General Counsel of the Supercars Group of companies under ownership of Archer Capital.
- Botany Group - current Commercial Director with responsibility for M&A, special projects, proprietary brands, and legal.
- Bachelor of Commerce (Economics & Finance) and Bachelor of Laws (First Class Honours) - University of Sydney.
- Emerging COO Program - Stanford Graduate School of Business.

[« Go Back](#)

# IFC Subscribes to First Green and Blue Bond Issued by Krungsri, Supporting Thailand's Climate Goals



**Bangkok, Thailand, June 15, 2023**—To protect Thailand's blue economy and scale up financing for green projects, IFC is subscribing to a \$400-million green and blue bond issued by Bank of Ayudhya Public Company Limited (known as Krungsri), which aims to further support climate action and sustaining ocean health.

## Contacts

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Phone: +66-922-671-495  
E-mail: [mhermoso@ifc.org](mailto:mhermoso@ifc.org)

## Subscription

Receive news and updates about IFC

[SUBSCRIBE TODAY](#)

## Quick Links



# More discussion of this Wednesday !

7-year green and blue bond worth \$400 million to be privately issued by BAY

\$50 million will be dedicated to supporting the development of the bank’s blue assets related to ocean-friendly projects as well as protecting clean water resources, with the remaining subscription amount dedicated to supporting the growth of the bank’s eligible green assets.

19 June 2023

## Bank of Ayudhya raises \$400m from green, blue bond

By Ahren Lester



Thai lender Bank of Ayudhya has raised \$400 million from an inaugural green and blue bond, which is backed by the International Finance Corporation (IFC).

The deal includes a \$50 million ‘blue’ bond tranche focused on sustainable marine projects alongside a \$350 million green bond. The entire bond adheres to the Green Bond Principles administered by the International Capital Market Association (ICMA), with the blue bond element also aligning with the Guidance for Blue Finance published by the IFC in 2022.

Bank of Ayudhya – which is also known as Krungsri – said the blue bond proceeds would be used to support projects including those in the water supply, fisheries, and aquaculture sectors.

“With this maiden blue and green bond issuance, we hope to scale up our climate finance portfolio, thus significantly contributing to the achievement of our interim sustainable finance target of \$1.5 billion – [ahead of our long-term] \$3 billion [target] aimed for 2030,” said Krungsri chief executive Kenichi Yamato.

According to *Environmental Finance Data*, Krungsri raised \$220 million from its debut gender-focused social bond in 2019 – which was also backed by IFC as well as KfW-owned development finance institution DEG.

MOST READ

1. ICMA sustaina
2. EU st
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10. Susi indexes



# What are we talking about today?

Today is a quick overview of the field of “environmental finance”

(Tomorrow is getting into more detail, looking at some case studies, and how these deals work)

Today is a review of the key terms / products and what they mean, and commentary about key developments.

It is a very rapidly evolving area.

# Important things are happening very rapidly



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22 June 2023

## International Sustainability Standards Board to issue IFRS S1 and IFRS S2

The International Sustainability Standards Board will issue IFRS S1 *General Requirements for Disclosure of Sustainability-related Financial Information* and IFRS S2 *Climate-related Disclosures* on 26 June 2023.

When the Standards are issued on Monday, all users with a free ifrs.org account will be able to access the documents from the new IFRS Sustainability Standards Navigator and from the project pages.

**Related information**

[International Sustainability Standards Board](#)

[General Sustainability](#)

# An interesting report on green finance (and a topic of Thursday's lecture)



## *New financing instruments*

Financing instruments such as green, social, sustainable and sustainability-linked (GSSS) bonds have the potential to mobilize private capital at scale by attracting institutional investors that do not typically invest in individual projects. Today there is more than USD 2.5 trillion in ESG-related investment funds, but almost none of that capital flows to EMDEs. GSSS bonds offer one opportunity to attract some of that capital, but issuances remain heavily concentrated in advanced economies. In 2022, USD 136 billion of GSSS bonds were issued by EMDEs, with more than half of those issued in China. Growing this market will require robust third-party certification and monitoring, standardised industry guidelines, harmonised taxonomies, cost-effective regulation, and better instrument design.

The cost of capital is a pivotal indicator for energy transitions, as many clean energy projects are characterised by relatively high upfront investment, offset by lower operating costs over their lifetime. Financing costs can be a very high share of overall costs for clean energy projects in EMDEs. Our analysis of utility-scale solar PV projects reaching FID in 2021 suggests that financing costs constituted about half of the overall levelised cost of electricity (LCOE) in most of the key emerging markets (Figure 2.5). Only China exhibited a lower overall share of financing costs, closer to that in advanced economies.

## Scaling up Private Finance for Clean Energy in Emerging and Developing Economies



iea

IFC International Finance Corporation  
WORLD BANK GROUP





# Environmental finance in a page

## Debt defined by “Use of Proceeds”

- Green Bonds
- Blue Bonds
- Green Loans,

## Debt defined by “Use of Proceeds and Achievement”

- Social Impact Bonds
- Sustainability Linked Bonds

## Equity or other investments

- ESG ratings (On general or specialist funds)
- Biodiversity Funds
- Carbon Credits
- Biodiversity Credits
- Impact Investors



# Different types of blended finance

**Table 4.2** ▶ Blended finance instruments

Instrument	Details
<b>Concessional loan</b>	Concessional senior loan, priced below market; or subordinated loan in liquidation and/or in payments to all senior lenders, also priced concessionally.
<b>Guarantee</b>	<p>* First loss cover, up to an agreed maximum amount. Can be protected as a (funded or unfunded) guarantee on a single loan, or as a pooled first-loss guarantee on a portfolio of loans.</p> <p>* Particularly in the context of power generation projects, liquidity support guarantee can be provided on a revolving standby letter of credit (LC), that can be drawn by the project company if the offtaker fails to honour its payment obligation.</p>
<b>Concessional equity</b>	“Lower-priced” equity with a lower internal rate of return to offer affordable equity funding; or subordinated equity with cash waterfall (distribution of all proceeds including exit and dividends according to a waterfall).
<b>Investment grant<sup>5</sup></b>	<p>* Performance-based incentive (PBI): rebates to provide incentives and disincentives to achieve desired outcomes or results (e.g. tie at least a portion of payments to achievement and aim to reward innovation and successful implementation).</p> <p>* Viability gap funding (VGF): capital grant provided up to certain percentage of total investment costs for projects that are not commercially viable yet due to long gestation period.</p>
<b>Bond investment</b>	Instrument similar to a loan, can be traded privately or publicly, offshore or onshore. Can be used with PBIs.
<b>Local currency support</b>	Concessional funds to provide fully or partially subsidised currency hedge; or concessional loan with a subsidised spread (or with a swap-cost buydown) to absorb the high cost of currency hedge.

IEA Report



# Different types of investors

Entity type	Returns spectrum
<ul style="list-style-type: none"><li>• <b>Private companies</b> of all sizes</li><li>• <b>Commercial banks</b></li><li>• <b>Institutional investors</b> such as pension funds, sovereign wealth funds, other asset managers</li></ul>	<b>Market-rate returns</b>
<ul style="list-style-type: none"><li>• <b>Bilateral, multilateral and national development banks</b> (private sector arms)</li><li>• <b>Impact investors</b> (seeking impacts and returns)</li></ul>	<b>Quasi or blended returns</b>
<ul style="list-style-type: none"><li>• <b>Philanthropies and NGOs</b></li><li>• <b>Bilateral, multilateral and national development banks</b> (public sector arms)</li><li>• <b>Impact investors</b> (not seeking market returns)</li><li>• <b>Governments</b></li></ul>	<b>Below market-rate returns by design</b>

IEA Report



# A couple of useful links

Environmental Finance Magazine:

<https://www.environmental-finance.com>

UNITED NATIONS ENVIRONMENT PROGRAMME  
FINANCE INITIATIVE (Note reference to TNFD)

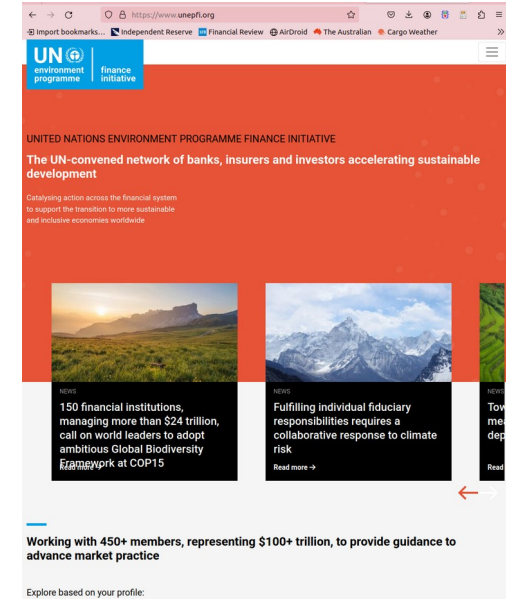
<https://www.unepfi.org/>

EU Taxonomy

[https://finance.ec.europa.eu/sustainable-finance/tools-and-standards/eu-taxonomy-sustainable-activities\\_en](https://finance.ec.europa.eu/sustainable-finance/tools-and-standards/eu-taxonomy-sustainable-activities_en)

Some interesting materials and case studies:

<https://www.greenfinanceinstitute.co.uk/>



# The Taskforce on Nature-related Financial Disclosures (TNFD) ? (TOMORROW)



(In my opinion) one of the most significant developments in the last decade.

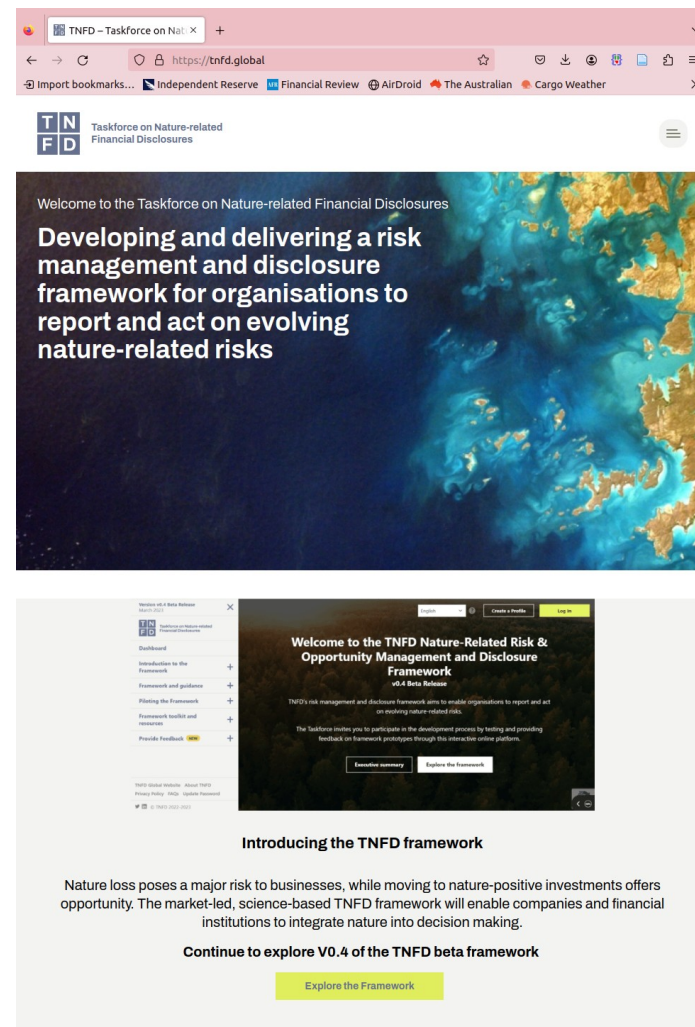
<https://tnfd.global/>

<https://tnfd.global/about/taskforce-members/>

At core, it is around developing a consistent risk management framework for asset managers / the finance sector to incorporate nature into decision making.

To give a concrete example, if a fund is investing in a new copper/gold mine what sort of nature related risks (or benefits) should be quantified, reported and considered in investment decision making, asset management, and investor reporting ?

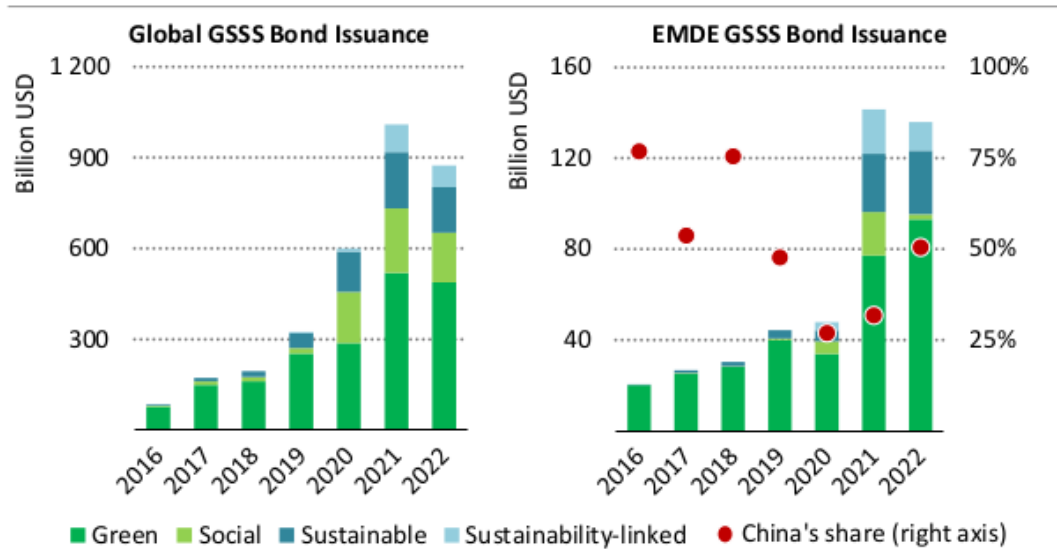
**THIS WILL CAUSE SIGNIFICANT CHANGES IN INVESTMENT FLOWS**





# Bonds issuances

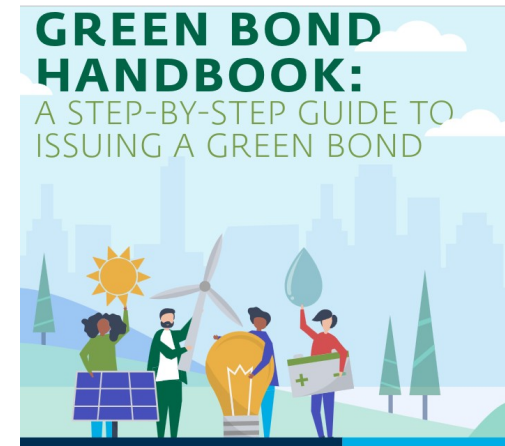
**Figure 4.1** ▶ Annual global GSSS bond issuance and annual EMDE GSSS bond issuance, 2016-2022



<https://www.iea.org/reports/scaling-up-private-finance-for-clean-energy-in-emerging-and-developing-economies>

- Social Impact Bonds
- Green Bonds
- Blue Bonds
- Green Loans
- Sustainability Linked Bonds

The Green Bond Principles are voluntary guidelines set out by the International Capital Markets Association (ICMA)



IFC Green Bond Handbook

<https://www.environmental-finance.com/content/in-brief/ifc-publishes-step-by-step-green-bond-issuance-guide.html>



# Growth in Green Bonds continues (crossed USD 4 trillion in June 23)

Bond Type	Volume	Share
Green	\$2.5 trillion	61%
Social	\$689 billion	17%
Sustainability	\$652 billion	16%
Sustainability-linked	\$217 billion	5.40%
Transition	\$12.8 billion	0.30%
Total	\$4 trillion	100%

Source: Environmental Finance Data

[https://www.environmental-finance.com/content/news/sustainable-bond-issuance-reaches-\\$4trn-milestone.html](https://www.environmental-finance.com/content/news/sustainable-bond-issuance-reaches-$4trn-milestone.html)



# So what actually is a bond ?

Just a standardised form of a loan.

Pays a regular coupon payment, for a fixed period.

A “green”, “blue” or “sustainability” bond is referring to the use of proceeds.

(This is where the taxonomies come into play)





# EU Sustainability Taxonomy (in progress)

Expected to apply from early 2024

Includes use of biodiversity credits for “additional actions” (not for offsetting purposes)

13 June 2023 – Adoption of Environmental/Climate Delegated Act and associated Sustainable Finance Package.

The proposal will require that ESG rating providers offering services to investors and companies in the EU be authorised and supervised by the European Securities and Markets Authority (ESMA).

European Banking Authority is producing guidance and regulations in respect of “Green loans”

[https://finance.ec.europa.eu/publications/sustainable-finance-package-2023\\_en](https://finance.ec.europa.eu/publications/sustainable-finance-package-2023_en)



# A bit about the EU Taxonomy

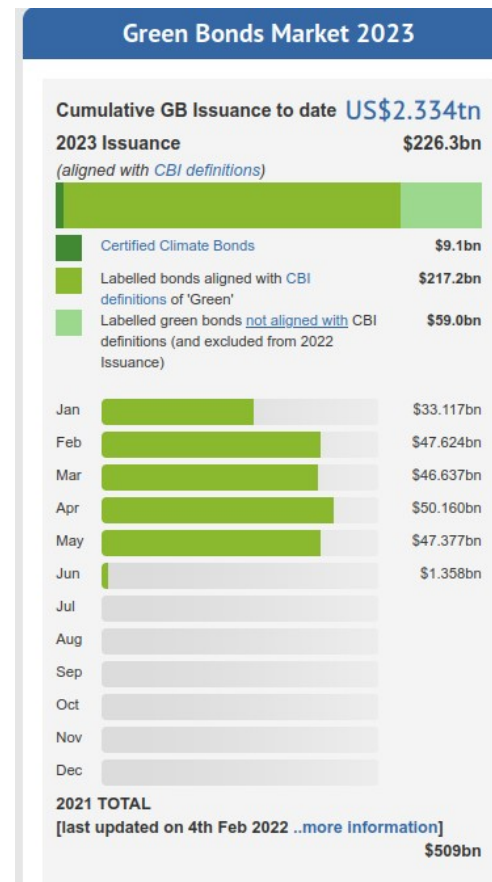
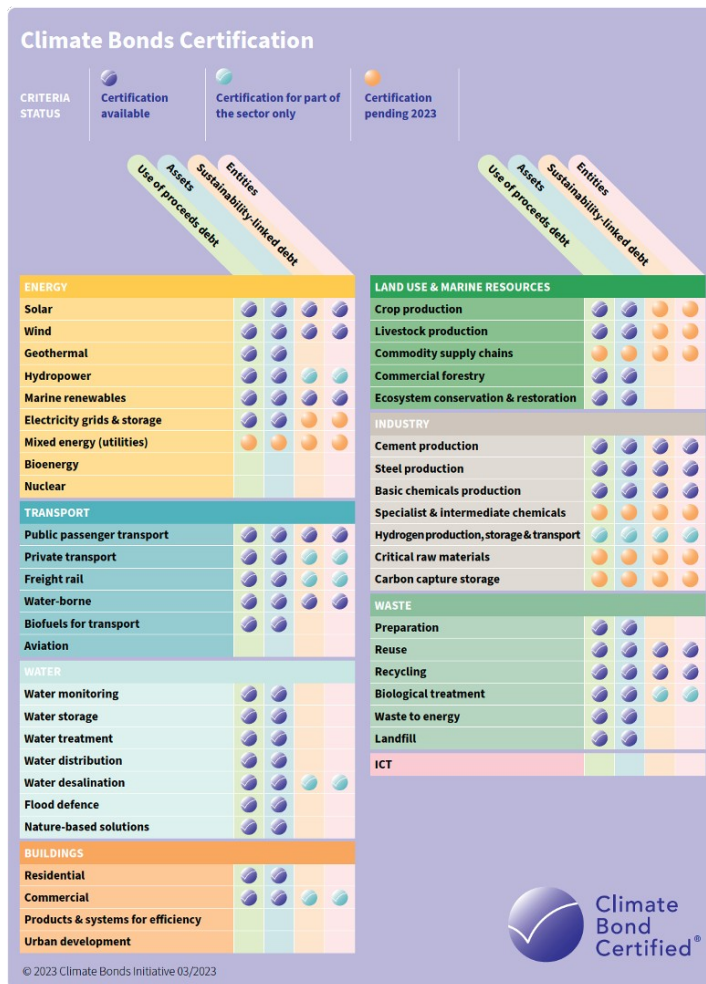
What the EU Taxonomy is	What the EU Taxonomy is not
A classification system to establish clear definitions of what is an environmentally sustainable economic activity	It's not a mandatory list to invest in
Tool to help investors and companies to make informed investment decisions on environmentally sustainable activities for the purpose of determining the degree of sustainability of an investment	It's not a rating of the "greenness" of companies
Reflecting technological and policy developments: The Taxonomy will be updated regularly	It does not make any judgement on the financial performance of an investment
Facilitating transition of polluting sectors	What's not green is not necessarily brown. Activities that are not on the list, are not necessarily polluting activities. The focus is simply on activities that contribute substantially to environmental objectives.
Technology neutral	
Fostering Transparency by disclosures for financial market participants and large companies related to the Taxonomy	

<https://ec.europa.eu/sustainable-finance-taxonomy/>



# Climate Bonds

<https://www.climatebonds.net/>



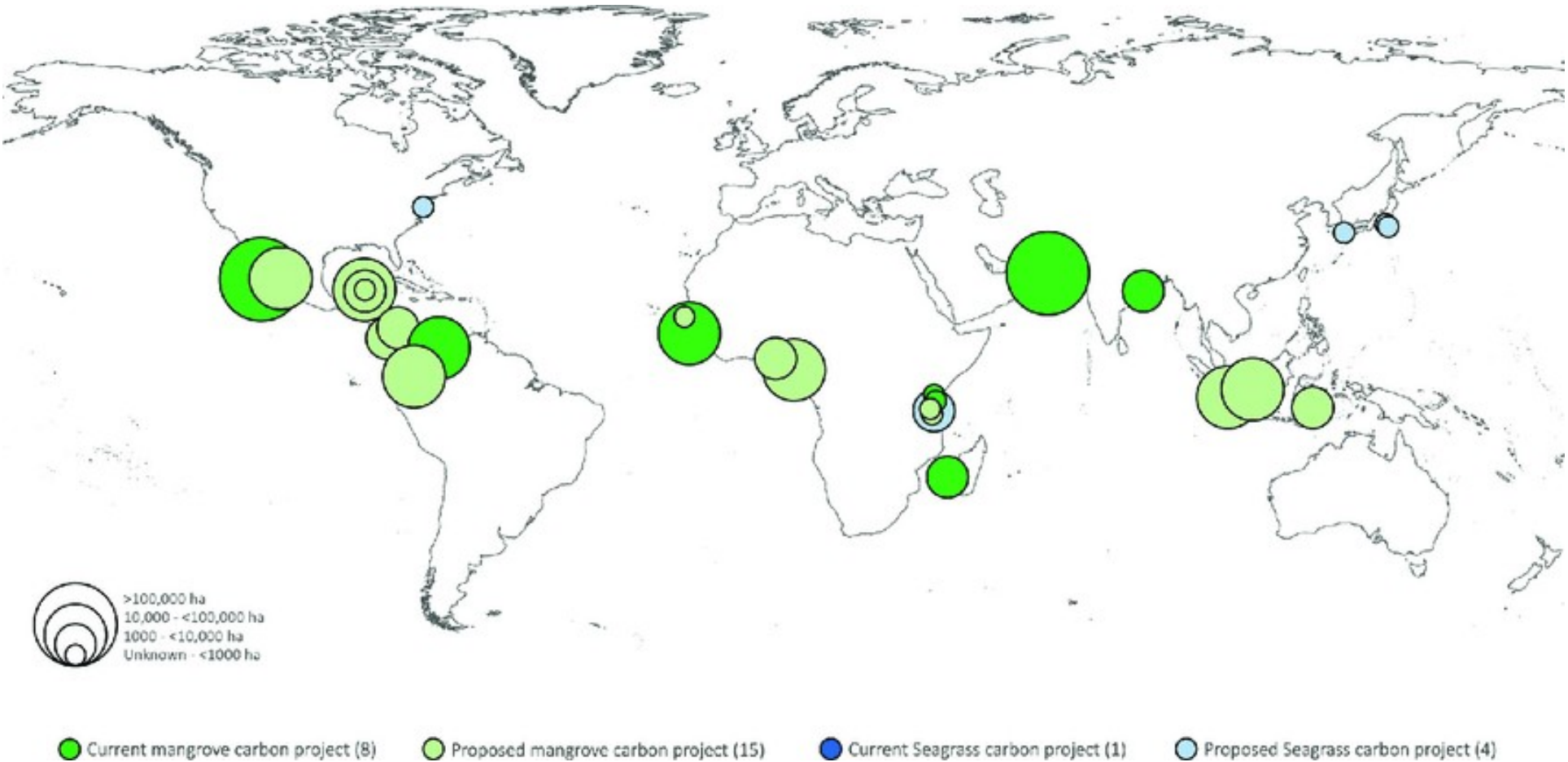


# Blue Carbon ? Blue Bonds ?

- The term 'blue carbon' in the narrowest definition refers to carbon associated with mangrove forests, seagrass meadows, and tidal salt marshes.
- But blue carbon can also be defined more broadly as *"carbon that is captured and stored by coastal and marine ecosystems, including all fluxes and stores that are biologically driven and are responsive to management"*
- This definition includes carbon from a broader number of ecosystem types, including coastal reefs and ocean ecosystems.
- Blue Bonds are debt raised to pursue some kind of projects that generate Blue Carbon, or other positive Marine Impacts.
- This is harder than "Green Bonds" and terrestrial carbon.



# Blue Carbon Projects



The great majority are assessed under the VCS

# Outstanding Australian issuance of Green and Sustainability Bonds



**GREEN BOND BLOOMBERG DATA SOURCED BY ADRIAN WONG OF DPE, March 2023**

Asset Class	Issuer Name	Coupon	Maturity	Currency	Amt Out (AUD)
Corporates	NBN Co Ltd	4.125	15/3/2029	EUR	1,206,412,500
Corporates	NBN Co Ltd	4.375	15/3/2033	EUR	965,130,000
Governments	Queensland Treasury Corp	4.500	9/3/2033	AUD	3,000,000,000
Corporates	FMG Resources August 2006 Pty Ltd	6.125	15/4/2032	USD	1,078,456,000
Corporates	Lendlease Finance Ltd	3.400	27/10/2027	AUD	500,000,000
Corporates	Lendlease Finance Ltd	3.700	31/3/2031	AUD	300,000,000
Corporates	Westpac Banking Corp	0.625	22/11/2024	EUR	777,160,000
Corporates	FMG Resources August 2006 Pty Ltd	6.125	15/4/2032	USD	1,078,456,000
Corporates	NBN Co Ltd	4.200	14/4/2027	AUD	800,000,000
Corporates	National Australia Bank Ltd	2.125	24/5/2028	EUR	1,513,830,000
Corporates	Westpac Banking Corp	0.766	13/5/2031	EUR	1,563,210,000
Corporates	Vicinity Centres Trust	4.927	2/6/2028	AUD	300,000,000
Governments	Queensland Treasury Corp	1.250	10/3/2031	AUD	1,500,000,000
Corporates	National Australia Bank Ltd	0.625	30/8/2023	EUR	1,203,187,500
Corporates	GPT Wholesale Office Fund No1	3.222	5/11/2031	AUD	250,000,000
Governments	Queensland Treasury Corp	1.500	2/3/2032	AUD	3,065,000,000
Corporates	China Merchants Bank Co Ltd/Sydney	2.000	2/3/2025	USD	549,184,000
Corporates	Industrial & Commercial Bank of China Ltd/Sydney	4.335	19/1/2026	AUD	500,000,000
Governments	Queensland Treasury Corp	3.000	22/3/2024	AUD	750,000,000
Corporates	University Of Melbourne	4.674	22/8/2029	AUD	200,000,000
Corporates	Miryac Group Finance Ltd	4.585	18/3/2033	HKD	179,327,990
Corporates	Woolworths Group Ltd	2.850	23/4/2024	AUD	400,000,000
Corporates	Commonwealth Bank of Australia	3.632	23/12/2026	AUD	500,000,000
Corporates	SGSP Australia Assets Pty Ltd	4.920	18/10/2032	HKD	161,955,200
Corporates	Oversea-Chinese Banking Corp Ltd/Sydney	3.760	12/8/2024	AUD	500,000,000
Corporates	SGSP Australia Assets Pty Ltd	2.620	17/12/2029	AUD	300,000,000
Corporates	Bank of China Ltd/Sydney	0.750	29/9/2024	USD	417,831,000
Corporates	QIC Finance Shopping Center Fund Pty Ltd	2.000	15/8/2025	AUD	200,000,000
Corporates	University of Tasmania	3.970	24/3/2032	AUD	280,000,000
Corporates	QIC Finance Shopping Center Fund Pty Ltd	4.757	15/8/2025	AUD	100,000,000
Corporates	ICPF Finance Pty Ltd	4.250	21/4/2027	AUD	100,000,000
Corporates	ICPF Finance Pty Ltd	2.725	11/10/2030	AUD	140,000,000
Corporates	GPJ RE Ltd	5.300	16/11/2032	HKD	150,072,475
Corporates	University of Tasmania	4.450	24/3/2042	AUD	70,000,000
Corporates	Trustee For The Armstrong Jones Office Fund/The	4.262	5/4/2024	AUD	3,800,000
Governments	New South Wales Treasury Corp	1.250	20/11/2030	AUD	2,250,000,000
Governments	New South Wales Treasury Corp	3.000	15/11/2028	AUD	1,800,000,000
Governments	Queensland Treasury Corp	2.500	6/3/2029	AUD	1,730,000,000
	Total				30,383,012,665

**SUSTAINABILITY BOND BLOOMBERG DATA SOURCED BY ADRIAN WONG OF DPE, March 2023**

Issuer Name	Market Issue	Coupon	Maturity	Amt Issued (AUD)	Amt Out (AUD)	Currency	KPIs
Wesfarmers Ltd	Euro MTN	0.954	21/10/2033	934,014,000	934,014,000	EUR	GHG
Woolworths Group Ltd	Domestic MTN	2.750	15/11/2031	350,000,000	350,000,000	AUD	GHG
Woolworths Group Ltd	Euro MTN	0.375	15/11/2028	887,518,500	887,518,500	EUR	GHG
Wesfarmers Ltd	Domestic MTN	1.941	23/06/2028	650,000,000	650,000,000	AUD	GHG
Wesfarmers Ltd	Australian	2.550	23/06/2031	350,000,000	350,000,000	AUD	GHG
Woolworths Group Ltd	Domestic MTN	1.850	15/11/2027	350,000,000	350,000,000	AUD	GHG
Optus Finance Pty Ltd	Australian	2.600	24/11/2028	300,000,000	300,000,000	AUD	GHG
Ampol Ltd	Domestic MTN	7.012	21/06/2082	150,000,000	150,000,000	AUD	GHG
ARPF Commercial Finance Pty L	Domestic MTN	3.600	11/11/2031	250,000,000	250,000,000	AUD	GHG
				4,221,532,500	4,221,532,500		
Total							

Australian corporates and government have been active issuing “green” and “sustainability” bonds. Bloomberg reports \$34B in already issued bonds.

Note although the Utas bond has a 20yr maturity, the average time to maturity on these bonds is 7.2 years.



# Growth in “biodiversity” funds

Biodiversity fund assets under management

Active funds				Closing AUM (millions)			
Company	Fund name	Launch date	Base currency	2022		2021	
				Base currency	US dollar*	Base	US dollar*
AXA IM	ACT Biodiversity Equity ETF	2022	USD	333	333	n/a	n/a
AXA IM	World Funds - ACT Biodiversity	2022	USD	125	125	n/a	n/a
Swiss Life	Equity Environment and Biodiversity Impact	2021	EUR	104.1	111.1	36.6	39.1
La Financière de l'Échiquier	Climate & Biodiversity Impact Europe	2020	EUR	86	91.8	n/a	n/a
La Banque Postale	Tocqueville Biodiversity ISR	2022	EUR	49.3	52.6	n/a	n/a
BNP Paribas	Easy ESG Eurozone Biodiversity Leaders PAB ETF	2022	USD	51.5	51.5	n/a	n/a
Piéride Asset Management	Europe Biodiversité	2008	EUR	44.5	47.5	111.9	119.5
UBP	UBAM - Biodiversity Restoration	2021	USD	42	42	86	86
Federated Hermes	Biodiversity Equity Fund	2022	USD	37.8	37.8	n/a	n/a
Ossiam	Food for Biodiversity ETF 1A USD	2020	USD	36.6	36.6	37.6	37.6
ASN	Biodiversiteit Fonds	2021	EUR	28.7	30.6	18.8	20.1
Karner	Biodiversity Impact Fund	2019	USD	8.9	8.9	10.6	10.6
HSBC	World ESG Biodiversity Screened Equity ETF	2022	USD	7.6	7.6	n/a	n/a
Fidelity International	Sustainable Biodiversity Fund A-ACC-USD	2022	USD	5	5	n/a	n/a
Robeco	RobecoSAM Biodiversity Equities	2022	EUR	3	3.2	n/a	n/a
Crédit Mutuel Arkéa	AIS Biodiversity First P	2022	EUR	0.5	0.5	n/a	n/a
				Total	984.7		312.9

\*Rate on 31 December, 2022 of 1 EUR = 1.06749 USD

Source: Each institution supplied its own data except for Piéride, La Banque Postale and Crédit Mutuel Arkéa, whose information came from Morningstar Direct

[https://www.environmental-finance.com/content/analysis/biodiversity-fund-assets-triple-in-2022-to-nearly-\\$1bn.html](https://www.environmental-finance.com/content/analysis/biodiversity-fund-assets-triple-in-2022-to-nearly-$1bn.html)

These are funds with an equity screen of some kind

Environmental Finance Channels Events COP Awards Green Bonds ESG Data Natural Capital

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27 February 2023

## Biodiversity fund assets triple in 2022 to nearly \$1bn

By Thomas Cox



**Assets in biodiversity funds passed \$984 million at the end of 2022, with a flurry of strategy launches despite macroeconomic woes, Thomas Cox reports.**

Total assets held in thematic biodiversity funds more than tripled over the course of last year, boosted by several fund launches, according to research by *Environmental Finance*.

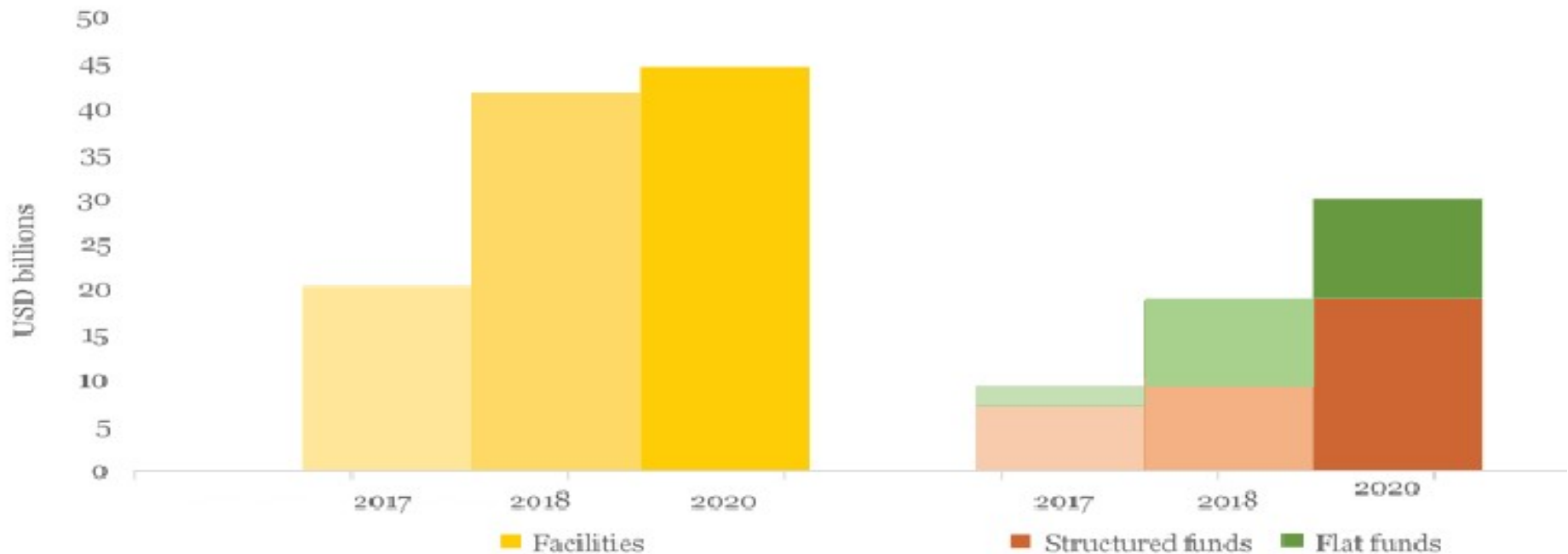
The combined assets under management (AUM) of funds or strategies mentioning “biodiversity” in their title climbed to \$984 million from just \$313 million a year before.

New launches and inflows helped the biodiversity fund universe grow, despite a tough year for equities markets.

Of the strategies that were in operation at the start of 2022, all but one made annual returns of minus 10% or worse.



# Taking another guesstimate...



OECD Survey (2022) of Biodiversity Related AUM (but based on 2020 survey work)

Based on growth observed elsewhere Aton guesstimates biodiversity funds AUM are actually closer to \$50B today.





# An example themed investment fund

Sustainable Business

## Climate Asset Management raises \$650 mln to invest in nature projects

By Virginia Furness

December 14, 2022 7:26 AM GMT+11 · Updated 6 months ago



A bee sits on a flower budding from an almond tree, which rely on natural pollinators for fertilization in an Almonds grove in Tel Arad, southern Israel March 4, 2020. REUTERS/Amir Cohen

LONDON, Dec 13 (Reuters) - Climate Asset Management, the specialist "natural capital" investment manager formed by HSBC Asset Management (HSBA.L) and climate change advisory firm Pollination Group, said it has raised \$650 million for projects which aim to protect the environment.

The capital raised from institutional investors and corporates is one of the larger amounts to be raised in the nascent market which looks to twin improved environmental outcomes with financial or other returns by investing in nature.

Co-optimising real assets

Paying a financial OR an environmental return

(Note Pollination was involved in the Pakistan Blue Carbon Project (WEDNESDAY))

Case study: Project	Delta Blue Carbon – Pakistan, Mangroves
Target	Protect the Indus Tidal wetlands and deliver significant social health benefits to local community
Validation	Climate, Community and Biodiversity Standard, Verified Carbon Standard VERRA
Size	224,000 ha
Credits issued	3.15million
Outcomes	Environmental Finance award 2022, created 21,000 jobs, planted 86,409 hec and removed an estimated 142M/TCO2. Estimated last sale price at \$USD27.80 per credit in 2022
Proponents/ Partners	Microsoft, Pollination, Carbon Growth Partners, Silverstrum



# Carbon Credits and Biodiversity Credits

- The 7-19th December 2022 UN Biodiversity Conference (COP15) concluded with global pact to protect biodiversity. Australia, the US and the EU have ratified the targets (as have many other countries).
- Includes an explicit target to have 30% of Land and Sea under some form of conservation by 2030.
- In the Australian context, compared to the current size of National Parks, this implies at least a 3x increase in conservation activity in Australia, much of which will need to be on private land.
  - (National Parks cover 8% of Australia. 55% is under some kind of private ownership)
- Plans for the further development of environmental finance to make the enormous investments required to meet these goals.
- **Biodiversity markets will likely be significantly larger than Carbon markets by 2030.**
- Australia and the United States have committed to coordinating their policies, and Australia has already announced it will launch a national biodiversity “Nature Repair Market” scheme. (Draft legislation has been released)



# The NSW Biodiversity Offset Scheme

Established as both a compliance scheme and a voluntary offsetting arrangement by NSW Government in 2016.

(Globally the first mandatory government backed Biodiversity Crediting scheme)

Uses a NSW Government issued “Biodiversity Assessment Methodology (BAM) to establish two sorts of credits:

- ecosystem credits, which measure the offset requirement for impacts on threatened ecological communities, threatened species habitat for species that can be reliably predicted to occur with a plant community type, and other plant community types generally
- species credits, which measure the offset requirement for impacts on threatened species individuals or area of habitat.



# Who runs the NSW Biodiversity Scheme ?

Two NSW Govt entities run the BOS:

- Department of Environment and Planning
  - <https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity-offsets-scheme/about-the-biodiversity-offsets-scheme>
  - Scheme “regulator” and policy
- Biodiversity Conservation Trust
  - <https://www.bct.nsw.gov.au/>
  - Purchases credits for compliance purposes, and enables voluntary acquisitions.

Compliance Market Turnover was around AUD \$100M last year

- HOWEVER, there have been a string of large private deals outside the compliance market. (For example, Syndication Sanctuaries is currently selling a single portfolio of properties that they estimate to have \$200M worth of BOS Credits attached)
- We will discuss a specific example in the Wednesday lecture