

Advancing climate skills in the Australian financial system

Institute for Sustainable Futures

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About the authors

ISF is an independent research institute within the University of Technology Sydney. We conduct transdisciplinary, project-based research in line with our vision of creating positive change towards sustainable futures. The CSIRO is Australia's national research agency and through the CSIRO Climate Science Centre has collaborated with ISF in the implementation of this study as part of the partnership with the CSIRO Climate Innovation Hub.



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01

Executive summary

Executive Summary: highlights



- With the material impacts of climate change becoming increasingly apparent across the global economy, and with Australia committing to net-zero greenhouse gas emissions by 2050, there is a need to ensure that those working in financial systems have the skills required to support an orderly transition of the Australian economy.
- The Institute for Sustainable Futures (ISF) at the University of Technology Sydney (UTS) and the Commonwealth Scientific and Industrial Research Organisation (CSIRO) Climate Science Centre, undertook a Climate Skills Survey – a survey of sustainable finance professionals to explore the skills issue within the context of the Australian financial system. This report presents the results and insights from the research.
- The survey looked at the current level of supply of climate skills across the Australian financial system in relation to existing market demand, explored barriers to increasing climate skills, and mechanisms to support strategically targeted upskilling. The key conclusion from the survey is that there is currently a climate skills gap and that the gap is likely to grow.
- Climate skills are being integrated into financial system regulatory practices through regulators including the Basel Committee on Banking Supervision and Financial Stability Board. Financial centres including Singapore, United Kingdom, Ireland, Japan and Hong Kong are focusing on climate and sustainable finance skills development.
- Australia requires a sustainable finance learning ecosystem to support sustainable finance skills development.
- Key insights are that Australia can establish an Australian sustainable financial system learning ecosystem through the establishment of a Sustainable Finance Skills Partnership, with an annual Australian Sustainable Finance Skills Report providing a mechanism to benchmark development on an annual basis.

Executive Summary: key climate skills survey findings

Sustainable finance professionals were invited to complete an online survey, which was distributed through industry bodies. Respondents were people working in Australian financial institutions or financial system related roles, including government or academia, who self-identified as having some responsibility for sustainable finance-related matters in their role. A total of 71 sustainable finance professionals completed the survey.

Key survey findings:

- More than three quarters of respondents say that climate skills are in moderate to high demand in their organisation.
- Current demand for climate skills is greater than supply, with 67% indicating there is less supply than demand and nearly 40% of respondents saying there is much less supply than demand.
- The most important skills identified for current roles are reporting and disclosure followed by climate risk management. The skills topic in greatest demand for upskilling is scenario analysis.
- Despite the importance of climate skills to respondents' roles, 63%, feel they need to upskill on climate skills. More than 70% of respondents, say there are barriers to them upskilling.
- Lack of time is the most significant barrier to upskilling. Lack of information about, or access to, relevant training resources and a lack of relevant credentials was also noted.
- While a majority of respondents think their organisation has a good understanding of the climate skills needed, a significant proportion, over 40%, think it does not.
- There is a clear expectation from survey respondents that demand for climate skills is set to grow with external stakeholder requirements a major driver of demand over the next five years.
- Outsourcing to consultants or upskilling employees are somewhat more common solutions than recruitment for sourcing additional climate skills. Of those who have tried to recruit new employees with climate skills, three quarters have experienced difficulty.
- Social Network Analysis suggests that individuals with climate skills within organisations may be relatively isolated from others with those skills, both within their organisations and externally.

Executive summary: international developments

Financial system regulators including central banks are beginning to scrutinise and require greater accountability around climate skills across the financial system. Financial supervisors and domestic authorities are responding with initiatives to support climate and sustainable finance skills development. In this context, development of climate and sustainable finance skills needs to be seen from a competitive perspective. Jurisdictions that do not develop sustainable finance skills and competencies risk falling behind.

Financial System Regulators

The report identifies international developments amongst financial system regulators including:

- The Basel Committee on Banking climate-related risk principles incorporate skill and capacity building as core elements.
- The Financial Stability Board (FSB) has identified learning is integral to developing effective policies to address climate risk establishing the Climate Training Alliance to build the skills capabilities of regulators.
- Australian Prudential Regulation Authority Prudential has integrated skills expertise into Practice Guide CPG 229 Climate Change Financial Risks.
- The Monetary Authority of Singapore is supporting three sustainable finance centres.
- In the United Kingdom the Green Finance Institute established with the support of the UK Government and City of London hosts the Green Finance Education Charter.
- Ireland's Sustainable Finance Skillnet works to upskill those employed within both the financial services sector and business to be sustainable finance leaders.
- Japan's Financial Services Agency Second Report of the FSA Expert Panel on Sustainable Finance focuses on skills and competency.
- Hong Kong Monetary Authority has supported the establishment of the Centre for Green and Sustainable Finance (GSF Centre) to “build capacity and enhance talent and data resources for the financial industry.”

Financial Centres focusing on sustainable finance skills

Singapore, United Kingdom, Ireland, Japan and Hong Kong are proactively building sustainable finance skill strategies:

Executive summary: developing a sustainable finance learning ecosystem

Financial system participants integrating climate considerations into financial practices face a number of challenges...

Firstly, the range of functions where climate-related and sustainable finance skills are required is diverse, from accounting through to risk management and assessment of investment opportunities. Climate scenario analysis, for example, typically involves risk management professionals who may not have historically had responsibility for climate-related issues in their roles.

Secondly, climate and sustainable finance skills requirements are likely to evolve. It is anticipated for instance that biodiversity and natural capital considerations will become an important component of financial risk management. Skills will need to be constantly updated to reflect evolving management and regulatory practices as well as the continued evolution of climate science and the need to reallocate capital to sustainable activities.

If financial system participants are not sufficiently skilled or business practices are not updated, it could lead to a worsening of impacts on the stability of the financial system and could impede the rapid, economy-wide decarbonisation and reallocation of capital needed to meet the Paris Climate Goals and the Sustainable Development Goals.

Building climate-related skills will not be a matter of attending a

single training or education program, rather, learning will need to be part of continual professional development and recognised as such. Skills and competency frameworks must respond rapidly to immediate skills needs and be able to respond to new demands over time. **A sustainable finance learning ecosystem is needed to support the diversity of skills development required across a range of functions.**

While there are presently examples of individual sustainable finance learning and training market offerings, the Australian financial system does not yet have a sustainable finance learning ecosystem that supports regular structured learning, and generation of new knowledge. There is no system-wide coordination to identify and address sustainable finance skill needs to an agreed standard. **The development of a learning ecosystem to support skills development demands a coordinated effort from all stakeholders involved in Australia's financial system.**

Executive summary: key insights

A number of supporting mechanisms would assist in climate and sustainable finance skills development:

- At the national level, strategic policy and associated regulatory settings would provide an overall framework for development of sustainable finance skills and competencies.
- Agreement on, and implementation of, sustainable finance-related standards would help to clarify the knowledge, expertise and competencies required. Internationally, climate-related standards are converging around reporting, disclosure and categorisation with prominent examples including the establishment of the ISSB and taxonomies to classify sustainable economic activities.
- Competency frameworks support capacity development by providing clarity around performance expectations. A starting point for a competency framework could be to develop minimum or core competency requirements for Boards and senior management. Once competency frameworks are established, they can be further embedded through practical mechanisms such as linking sustainability or ESG outcomes and KPIs to performance assessment and remuneration.

We propose two key mechanisms to deliver progress on skills development:

1. Sustainable Finance Skills Partnership

There is a need for immediate establishment of a Sustainable Financial Skills Partnership between industry, government, regulators, universities, researchers and other professional finance training providers. The Partnership could be led by a consortium consisting of the Australian Government, industry, academia and research institutions and would provide a mechanism for collaboration across Australia's financial system on sustainable finance skills.

2. Australian Sustainable Finance Skills Report

There is a need for development of an annual Australian Sustainable Finance Skills Report to understand the current state of play, track the strategic development of sustainable finance skills and competencies over time, and benchmark performance internationally.

02



Introduction

Introduction

The Australian economy is now increasingly experiencing the material impacts of climate change across multiple sectors, including financial services. With Australia committing to net-zero greenhouse gas (GHG) emissions by 2050, there is a need to ensure that financial systems have the skills required to support transition in an orderly manner across the economy. Globally, including here in Australia, there is evidence that there is a gap between the availability of climate and sustainable finance skills and what is required to support the transition.

The Institute for Sustainable Futures (ISF) at the University of Technology Sydney and the Commonwealth Scientific and Industrial Research Organisation (CSIRO) Climate Science Centre undertook a survey to explore this issue within the context of the Australian financial system. The Climate Skills Survey focused on a subset of sustainable finance skills – ‘climate skills’, which we defined as climate/climate risk-related skills, knowledge areas or competencies.

The survey sought to explore the current level of climate skills within financial system participant organisations and sustainable finance professionals in relation to existing and emerging market demand for climate skills. Participants were also asked about barriers to increasing climate skills in the financial system, and mechanisms to support upskilling.

Social Network Analysis (SNA) was applied to explore the movement of skills within the financial system and connections between sustainable finance professionals over time.

The report presents and analyses key findings from the skills survey within the context of regulatory developments relevant to climate and sustainable finance skills both internationally and in Australia. The report identifies key findings to facilitate accelerated development of climate and sustainable finance skills across Australia’s financial system.

03



Survey methodology and key findings

Survey methodology

Sustainable finance professionals were invited to complete the Climate Skills Survey. Survey respondents were people working in Australian financial institutions or financial system related roles, including government or academia, who self-identified that they have some responsibility for sustainable finance-related matters in their role.

The survey was shared through financial system networks including professional membership organisations the Australian Institute of Superannuation Trustees (AIST), Australian Banking Association (ABA), Responsible Investment Association Australasia (RIAA) and the Australian Sustainable Finance Institute (ASFI).

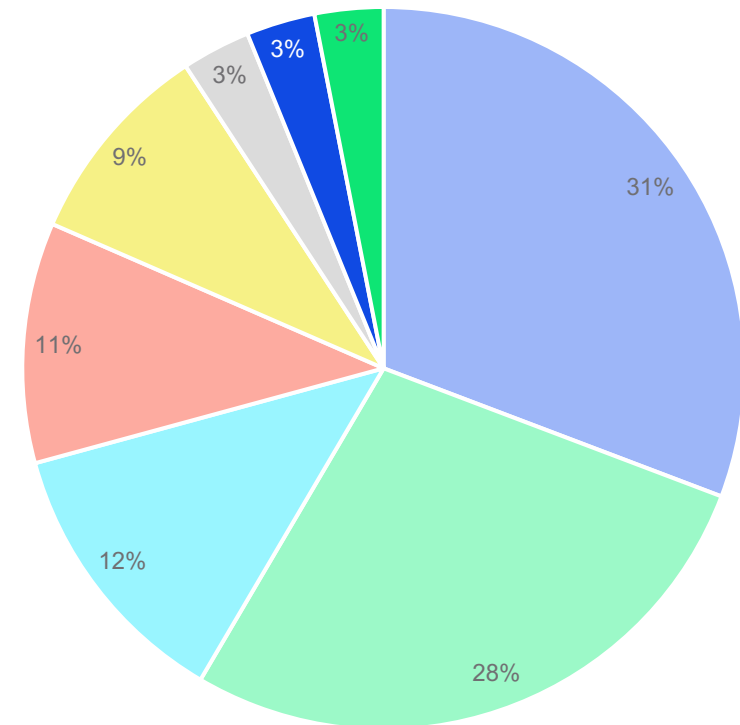
Survey responses were collected anonymously and are presented in this report in an aggregated analysis. A Social Network Analysis (SNA) was used to examine how climate skills have moved through organisations over time (see page 21 for description of SNA methodology).

The total population of sustainable finance professionals is unknown and the survey is not intended to be statistically representative, rather to provide useful insights into climate skills and associated gaps and needs in the Australian financial system. The survey was subject to UTS' ethics approval process.

Survey participants

- 71 respondents fully or almost fully completed the survey. For two-thirds of the respondents, more than half of their role is allocated to sustainable finance-related matters and just over half the respondents have worked in a sustainable finance-related role for over 5 years.
- Close to 30% of respondents work in asset management/investment and another quarter in banking. Other respondents are from superannuation, and professional services (such as legal, accounting, sustainability / ESG). A small number of respondents work in insurance, academia, government and not-for-profit sectors.
- A quarter of respondents identify investment as the key function of their current role, followed by 15% identifying research (around half of whom are in academia). Around 10% each selected risk management, government affairs and management respectively as the key function of their role.

Respondents by sector



- Asset management / investment
- Banking
- Professional services
- Superannuation
- Academia
- Insurance
- Government/regulatory institution
- Not-for-profit/community

Demand for climate skills is outstripping supply

More than three quarters of survey respondents say that climate skills are in moderate to high demand in their organisation.

Current demand for climate skills is greater than supply, with 67% in total saying there is less supply than demand and nearly 40% of respondents saying there is much less supply than demand.

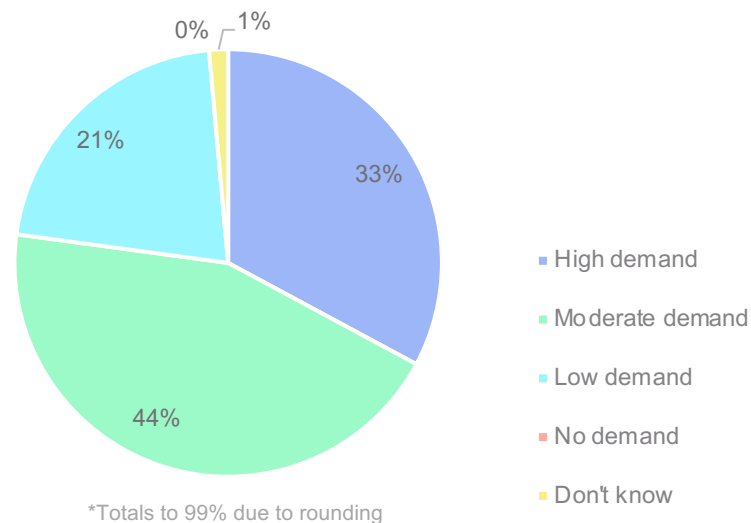
One comment nicely summarises the demand/supply issue:

“The specialisation of skills/knowledge required for this area has moved very quickly and there are not enough people who have experience of both climate and the finance sector.”

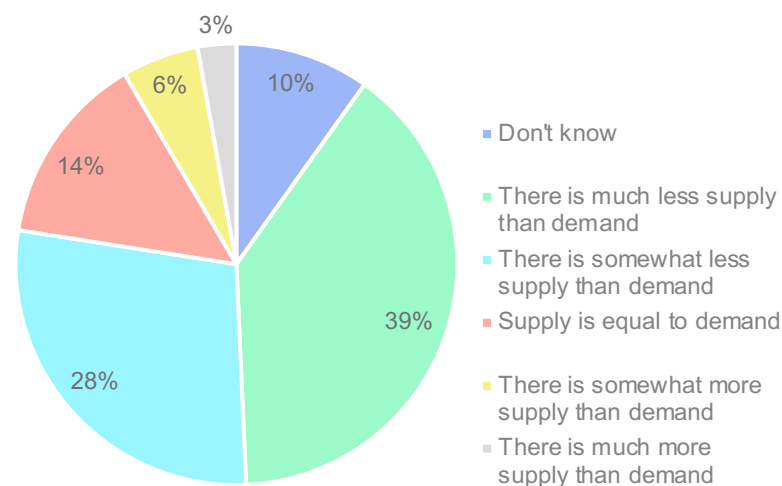
The findings from the survey are consistent with international research. In a survey that explored future sustainable finance skills and talent requirements in Ireland, 67% of respondents said that “there is current demand for Sustainable Finance skills and talent within their organisations, however, supply is inadequate and upskilling is required”.¹

In similar research in Canada, 68% of survey respondents said there is demand for sustainable finance skills within their organisation but that supply is inadequate.²

Level of demand for climate skills



Demand for climate skills in relation to supply



Respondents face barriers to upskilling

Despite the importance of climate skills to respondents' roles, a significant number, 63%, feel they need to upskill on climate skills.

A majority of respondents, more than 70%, say there are barriers to upskilling.

Lack of time is the most significant barrier to upskilling as noted in this comment:

“Every single person I work with is short of time. Like never before. Skills development and training is a luxury which is easy to ignore.”

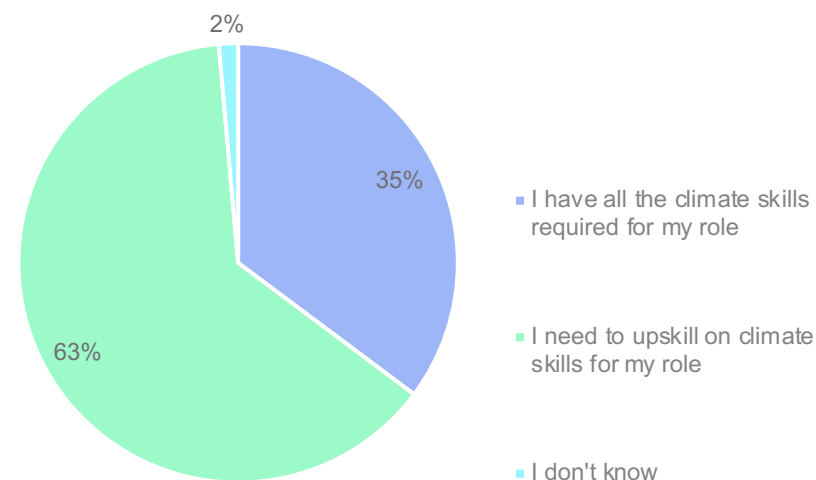
Most respondents did not see uncertainty about the benefits of upskilling as a significant barrier. This may point to an emerging skills market where individual recognition of the need for, and benefits of, upskilling is not yet adequately supported by organisational time and resource allocation.

Lack of information about, or access to, relevant education and training resources and lack of availability of relevant credentials are identified as barriers. This suggests the need for more market-driven training offerings to be developed and tailored to the needs of financial system participants.

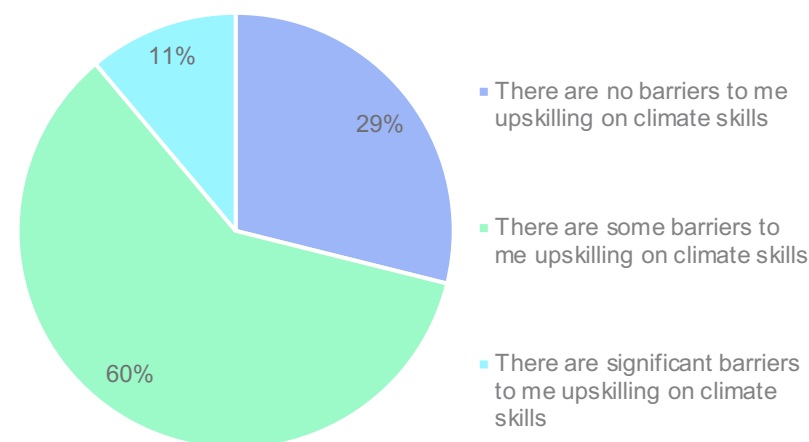
The skills topic in greatest demand for training is scenario analysis, both qualitative and quantitative, closely followed by reporting and disclosure and climate risk management.

Short-form learning formats such as conferences, professional and short courses are more in demand than university degrees. Hybrid learning that combines online and face-to-face elements are most popular.

Upskilling requirements



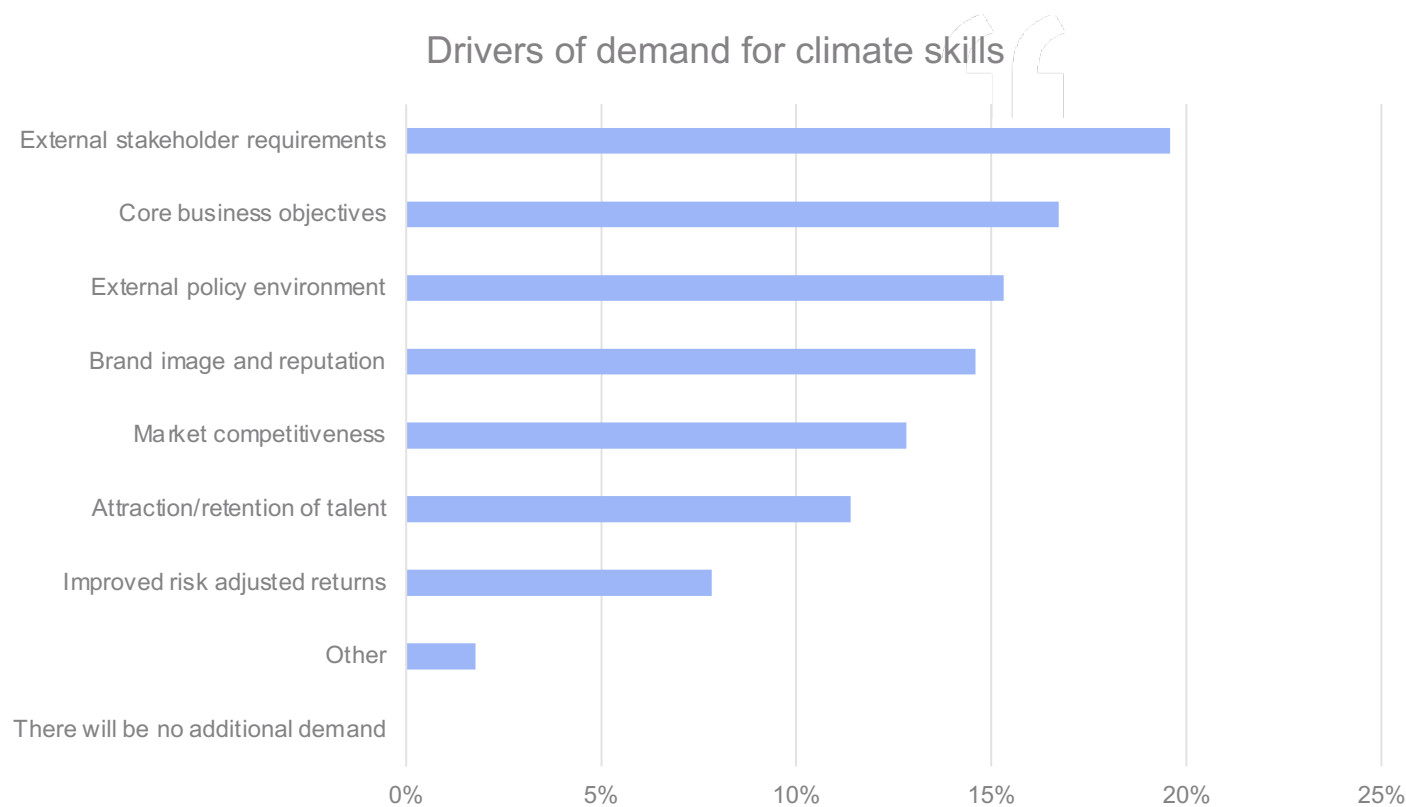
Barriers to upskilling



Demand for climate skills will continue to grow, driven by external factors

There is a clear expectation from survey respondents that demand for climate skills is set to grow. No respondents say there will be no additional demand for climate skills over the next five years.

Respondents see external stakeholder requirements as a major driver of demand for climate skills over the next five years. This is likely linked to the importance of reporting and disclosure which is being driven by investors, regulators and other stakeholders. Connected to this is the external policy environment, which is also identified as a major driver of demand for climate skills. Internal business objectives, brand and reputation (again connected to stakeholders) are also identified as important drivers.



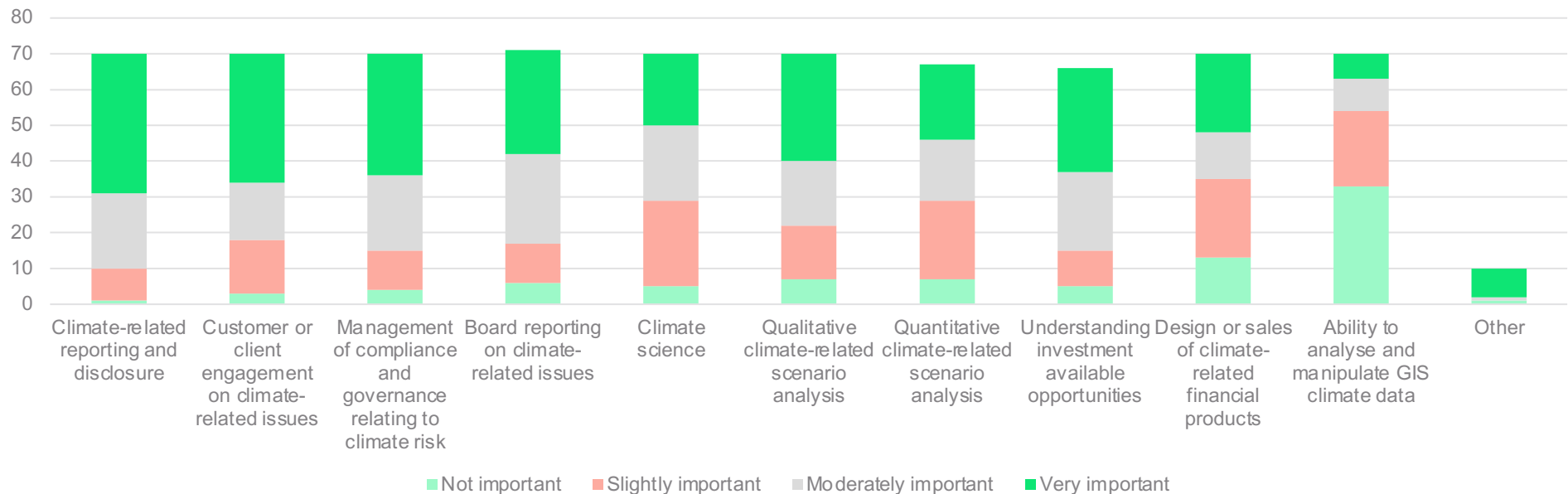
A range of climate skills are needed

Respondents were asked to rate the importance of a range of climate skills to their role. A majority of respondents identified nearly all the specific skills we asked about as moderately to very important to their role.

Climate-related reporting and disclosure is the skill that is most important to respondents, with over 80% of respondents identifying this as moderately to very important. Climate risk management, Board reporting on climate issues, customer/client engagement on climate-related issues, understanding investment opportunities and scenario analysis are all identified as important skills.

There was strong representation of investors in our respondent cohort, which would have contributed to the skills in understanding investment opportunities being rated as important. The ability to analyse and manipulate geographic information system GIS data was not identified as being as important as other climate skills we asked about. This skill may be more relevant to a more technical cohort, including banking and insurance sectors that are focused on place-based risks. It is also the case that the survey respondents across the financial system may not yet fully understand the emerging utility of this skill set in relation to climate and sustainable finance analytics and reporting.

Importance of climate skills to role



Climate skills are often outsourced, external recruitment is challenging and not all organisations fully understand their skills requirements

When organisations need to source additional climate skills, outsourcing to consultants or upskilling employees are somewhat more common solutions than recruitment. Nonetheless, a majority of organisations have tried to recruit new employees with climate skills in the last two years. Of these, three quarters have experienced difficulty recruiting for roles requiring climate skills.

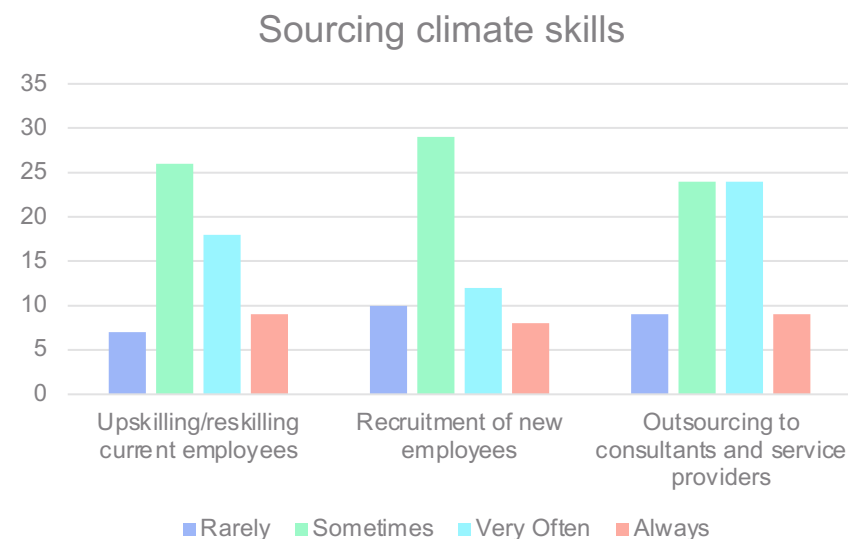
This supports the overall picture of demand for climate skills not being matched by supply of climate skills in the market.

While a majority of respondents think their organisation has a good understanding of the climate skills it needs, a significant proportion (over 40%) think it does not.

Respondent comments identified that organisations are still trying to understand the skills requirements and that it is particularly challenging in a fast-evolving space. One respondent noted that there is no climate skills assessment framework for the financial services sector, which makes it difficult to undertake training needs analysis.

“No organisation currently has a strong grasp of the climate skills the rate of pace of change in the climate skills they need given space.”

In addition to the climate-skills explored in the survey, respondents identified organisational need for a variety of other skills including: integration of climate factors into investment management, general capacity-building on climate issues and general client/customer fluency across a range of functional roles, climate-related corporate engagement and Board level understanding of the changing external environment in relation to regulation, investment risk etc.



Accelerating development of climate skills

Respondents identified ways to accelerate and support climate skills development

The following points are themes identified from qualitative comments provided by survey respondents:

Recognition of the scale of the change required

There is a need for greater recognition of the seriousness of the issue and that a paradigm shift is underway, including a need for more realism on the challenges within the finance sector and a more sophisticated industry discussion on investing for net zero that will help to identify the skills gap.

Policy and regulation

There is a need for a clear policy framework (including climate targets) and locally relevant regulation to provide certainty and consistency, standardisation of requirements, accountability for the impact of investments in contributing to positive or negative climate impacts, and a coherent approach to reporting and risk analysis.

System-wide capacity building

There is a need for a framework for defining and assessing skills and competencies, capacity-building within organisations as well as specialised services and consultancies, system-wide uplift on climate risk capacity, and dedicated time and resources for skills development.

Leadership

There is a need for organisational buy-in at Board level, along with Board-level climate skills, and appreciation of the need for skills, organisational strategy to embed climate skills as a competency (similar to risk management) and a phased approach to implementation.

Training

There is a need for improved access to relevant, targeted and tailored short-courses with appropriate credentials, in-house training provision, deeper incorporation of relevant content in core finance qualifications and professional learning curricula, mandatory professional development training, resources and funding to support training, development and sharing of resources within sectors to provide consistency.

Climate skills need to include a broad understanding of climate science and how to apply it as needed

Support for the premise that there is a climate skills gap was not universal.

A few respondents challenged the focus on skills with one suggesting that there is no skills gap, only a lack of will, and another noted a range of other issues need to be addressed, particularly addressing greenwashing.

While this survey focused specifically on climate skills, several respondents noted that the skills issue is not only about climate and that climate change affects other sustainable development issues. This suggests discussion on competency requirements needs to be broader than climate skills.

Some respondents commented on the need for a broad understanding of climate science specifically, while recognising that the finance sector cannot and should not aim for the same level of knowledge as climate scientists – rather an understanding of how to apply climate science to climate risk assessments in a practical and technically robust way.

It is noted that the skills topic in greatest demand for upskilling, climate scenario analysis, requires in-depth understanding of climate science.



04

**Mapping movement of climate skills through
social network analysis**

Mapping movement of climate skills through social network analysis

Social network analysis (SNA) is an approach that explores social structures.

It allows quantitative analysis and qualitative insights into interactions between individuals or nodes (individual actors or things within the network).³ SNA has been used in a variety of domains, and although some of the terminology may change, the principals and metrics are the same.⁴

In this research SNA has been applied to explore the movement of skills and connections between sustainable finance professionals over time.

The survey included specific SNA questions, and from the total completed surveys, 65 responses were suitable for the SNA, which is less than the ideal >100 completed responses. The SNA findings are hence somewhat limited and highly qualitative but nonetheless reveal useful insights. UCInet software was used to analyse and visualise the results.



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Social network analysis: methodology

SNA was used to map how climate skills have moved through organisations over time.

Survey respondents were asked to list the last three organisations where climate skills were necessary for their role and the years they worked in these organisations. The 65 responses were used to create three discrete 2-mode matrices reflecting three time periods:

- Time 1, 1990–2009
- Time 2, 2010–2016
- Time 3, 2017–2022.

Participants listed a total of 98 organisations that they had worked at during these time periods. Not every respondent was active at every time period; nor was every organisation active at each time period. Total respondents n = 65; total organisations listed n = 98, resulting in matrices of N=163.

Participants and organisations were categorised into the following sectoral groups:

- Academia
- Asset Management / Investment
- Banking
- Government / regulatory institutions
- Insurance
- Not-for profit / community
- Professional Services
- Superannuation
- Other

ORGANISATION CATERGORY	TOTAL	Respondents	Organisations
Academia	16	6	10
Asset management/investment	38	18	20
Banking	30	16	14
Government/regulatory institutions	16	2	14
Insurance	5	1	4
Not-for profit /community	8	2	6
Other	14	6	8
Professional Services	19	7	12
Superannuation	17	7	10

Social network analysis: findings

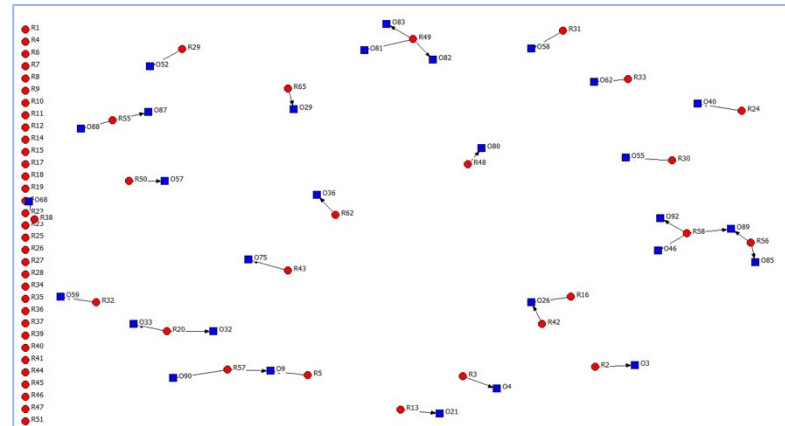
UCInet analysis and visualisation of these data are presented here.

In both Time 1 and Time 2, UCInet did not recognise the results to be a 'network' due to the lack of connections.

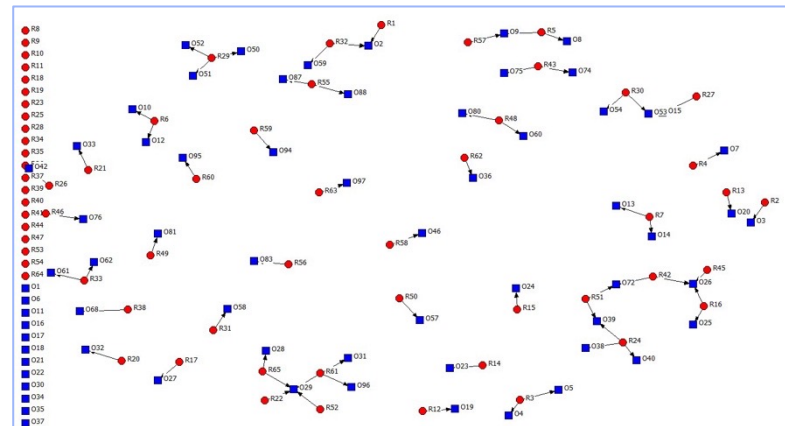
The red circles (respondents) and blue squares (organisations) not connected to anything else (left hand side) were not active in that time period.

In some time periods, respondents may have worked for more than one organisation.

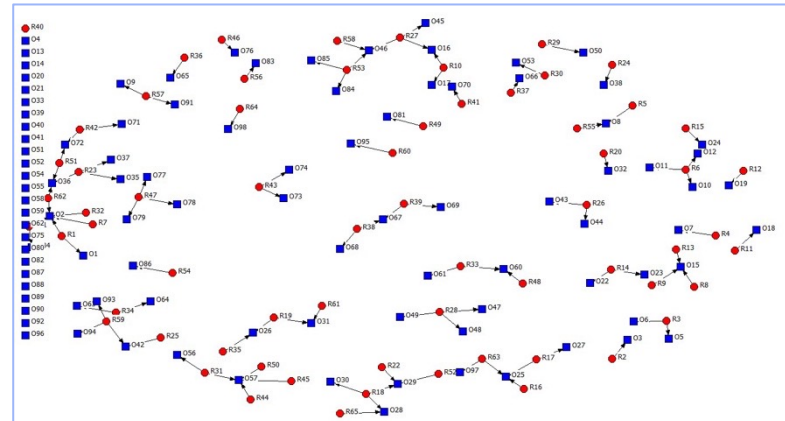
Time 3 saw the most connections of any time period, however the nodes are still highly fragmented.



Time 1, 1990-2009



Time 2, 2010-2016



Time 3, 2017-2022

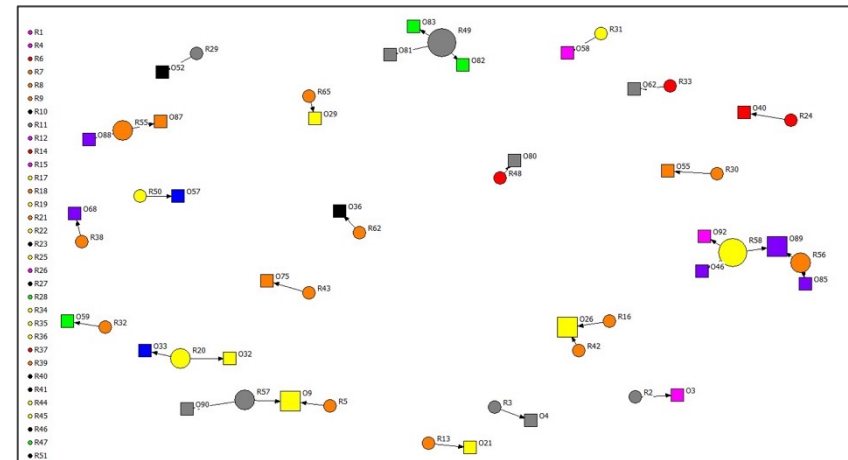
Red circle = Respondent | Blue Square = Organisation

Social network analysis: findings

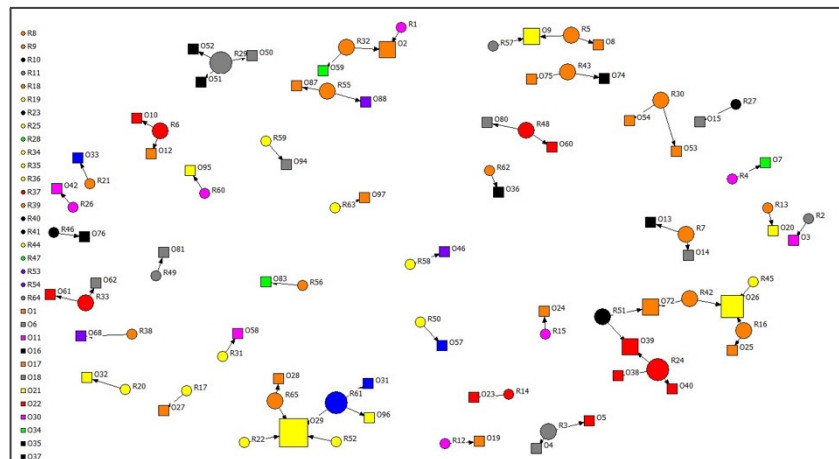
When the networks are visualised by category (colours), we can see that in earlier time periods, sectors are isolated, with academia connecting only to academia (red) and asset management/investment connecting only to asset management/investment (orange).

By 2017, there is some further connection through sectors, with banking (yellow), connected to asset management/ investment (orange) and insurance (blue). However, overall connections between sectors remain limited and do not represent a strong network. This contrasts with the illustrative example on the following page of a strong information network.

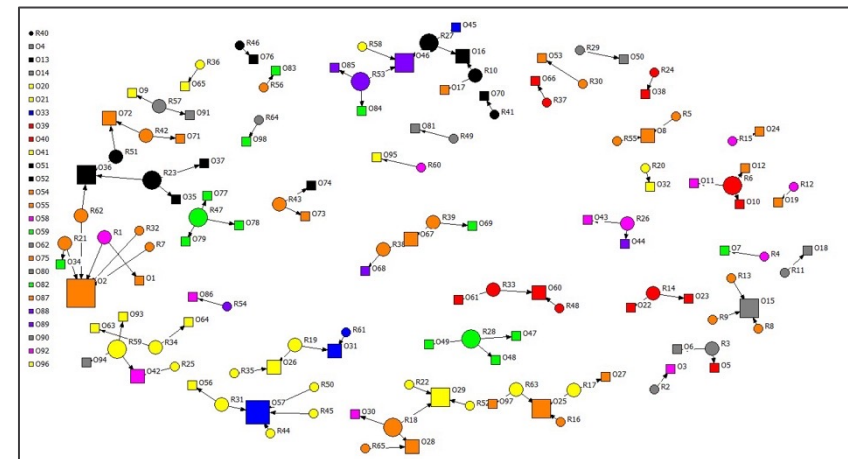
Indegree = size of node		
Organisation = Square		Respondent = Circle
Academia = red	Asset Management / Investment = orange	Banking = yellow
Government / regulatory institution = green	Insurance = blue	Not-for-profit / community = purple
Other = pink	Professional Services = grey	Superannuation = Black



Time 1, 1990-2009



Time 2, 2010-2016



Time 3, 2017-2022

Visualisation of networks

Example of a stronger information network that is connected by individuals and entities from different sectors⁵



Figure 1 Visualization of the Shoalhaven network: 'Where do you find your climate information?'

Note: the diagram is an extract from a separate report and is used here only to illustrate what a stronger information network looks like.

Mapping movement of climate skills through social network analysis

From the analysis, we can draw the following key insights:

- Until 2017, there was no visible network between professionals with climate skills through their workplaces. From 2017, a network is discernible but highly fragmented. This suggests that individuals with climate skills within organisations may be relatively isolated from others with those skills, both within their organisations and externally but that enhanced connectivity is perhaps starting to emerge.
- There appears to be little cross-organisational or cross-sectoral connection between individuals created through movement of climate skills between the organisations or sectors.
- The fragmentation of the network may illustrate the currently niche role of climate finance within the broader financial sector.
- In a fragmented network there is a risk that isolation can lead to attrition of climate financial professionals. It is also not conducive to sector-wide learning and capacity building.⁶
- The lack of connections between individuals via workplaces suggests the importance of provision of networking opportunities external to workplaces via, for example, professional bodies with a focus on sustainable finance.
- To facilitate climate skills learning and capacity building, there is a need for greater connection between government, regulators, universities and industry. There is an opportunity to develop a purposeful network based on climate or sustainable finance skills and to measure the growth of this network over time.

Limitation of the survey: the results from this SNA reflect the experiences of those who responded to the survey and only relates to respondents connected to organisations through their recent employment. Participants may experience greater connections through other engagements with networks, such as professional bodies, outside of their workplaces – the survey did not explore these potential connections.

05



**Climate skills context: key international
and Australian developments**

International developments focusing on the importance of climate skills and capacity building

Climate and sustainable finance skills are being integrated into financial system regulatory practices and financial centre initiatives.

Financial System Regulators

Financial system regulators are driving sustainability-related initiatives including the Taskforce on Climate-related Financial Disclosure (TCFD) and International Sustainability Standards Board (ISSB).⁷ Regulators are also paying attention to the development of sustainable finance skills and competencies to support financial systems to transition.

Here, we outline the following international developments:

- Basel Committee principles for the effective management and supervision of climate-related financial risks
- Financial Stability Board (FSB) Roadmap for Addressing Financial Risks from Climate Change 2022 progress report
- Bank of International Settlements Climate Training Alliance
- Sustainable Stock Exchanges (SSE) initiative Action Plan to Make Markets Climate Resilient

National Sustainable Finance Skill Strategies

Nations are proactively building sustainable finance skill strategies. The United Nations-convened Financial Centres for Sustainability (FC4S) is leading collaboration with financial centres globally. FC4S' report, *Leading Financial Centres Stepping Up Sustainability Action*,⁸ finds that 52% of financial centres surveyed reported that the lack of capacity and qualified workforce on sustainable finance is among the top barriers to scaling up sustainable finance.

The FC4S global survey is consistent with in-country research, for example, 43% of Canadian survey respondents to a FC4S led survey had experienced difficulty in identifying and recruiting suitably skilled sustainable finance staff.⁹ The Canadian research identified integration of ESG issues into financial products and services as the top learning need while Irish research found that training in 'baseline' sustainable finance knowledge was a top short-term skills priority.

Further in the report experiences from Singapore, Japan, Hong Kong, United Kingdom, Ireland and Australia are outlined.

International financial system regulators have identified the importance of skills and capacity building

Basel Committee principles for the effective management and supervision of climate-related financial risks

The Basel Committee on Banking Supervision is responsible for the global regulation of banks. The Basel Committee's climate-related risk principles were formally issued in June 2022¹⁰ and incorporate skill and capacity building as core elements of regulatory focus. For example, within Principles 2, 12 and 17:

- Banks should clearly define and assign roles and responsibilities associated with identifying and managing climate-related financial risks throughout the organisation and ensure they have sufficient expertise.
- Banks should ensure that the board and senior management have an adequate understanding of climate-related financial risks and appropriate skills and experience to manage the risks, including capacity and expertise to conduct climate scenario analysis. This may require capacity building.
- Supervisors should ensure that they have adequate resources and capacity to effectively assess supervised banks' management of climate-related financial risks. This includes regularly taking stock of existing skills.

Financial Stability Board (FSB) Roadmap for Addressing Financial Risks from Climate Change 2022 progress report ¹¹

The FSB, hosted by the Bank of International Settlements (BIS), promotes international financial stability by coordinating national financial authorities and international standard-setting bodies as they develop regulatory, supervisory and other financial sector policies. FSB issued a roadmap for addressing climate-related financial risks in July 2021 and a progress report in July 2022 both of which identify the importance of skills and expertise.

The FSI Roadmap identifies that feedback and learning is integral to developing effective policies to address climate risk due to the high degree of uncertainty around climate-related financial risks. Feedback is needed, for example, on experience with climate scenario analysis and experiences with the regulation and supervision of climate-related risks.

The 2022 Progress Report outlines skills initiatives including the Climate Training Alliance and IOSCO's focus on capacity building around ISSB Standards including developing a capacity building program, particularly to assist members in emerging market jurisdictions.

Financial system regulators and leaders globally are supporting climate-related capacity building

Climate Training Alliance (CTA)

Established in July 2021,¹² the CTA is an open collaborative platform for financial system regulators to share knowledge and promulgate best practices in managing climate risk. CTA is a collaboration between the BIS, the International Association of Insurance Supervisors, the Central Banks and Supervisors Network for Greening the Financial System (NGFS), and the UN-convened Sustainable Insurance Forum. It is hosted by FSI Connect, the e-learning platform led by the BIS's Financial Stability Institute (FSI).

CTA aims to enhance the availability of training resources for financial system regulators responding to climate risks. It will publish a series of climate-related learning tutorials covering the fundamentals of climate-related risk supervision with initial tutorials focusing on recent climate financial-risk related publications and topics such as:

- climate-related risk drivers, transmission channels and measurement methodologies (Basel Committee).
- stress testing banks for climate change (FSI)
- supervision of climate related risks in the insurance sector (IAIS)
- climate-related financial disclosures (TCFD)

Sustainable Stock Exchanges (SSE) initiative

SSE initiative is a United Nations multistakeholder partnership. In July 2021 SSE issued the Action Plan to Make Markets Climate Resilient,¹³ with a core focus on skills and training.

The Action Plan highlights the leadership role of stock exchanges and their ability to influence climate resilience through education and training, monitoring and incentives. Stock exchanges can help to determine gaps in market knowledge and contribute to filling these gaps. The plan notes that many stock exchanges have provided education and training on ESG topics and some are already providing training on TCFD and climate-related topics.

Training and education programs are useful preparation for disclosure, product development, compliance with regulatory guidelines, or listing requirements and should aim to fill market knowledge gaps. This may require tracking progress on key aspects of climate resilience and use of TCFD recommendations and related disclosures to ensure that education and training address real needs within the market. Training development should start with an analysis of the current best practices and/or recent progress.

Financial centres are developing their own sustainable finance skills strategies

Singapore

The Monetary Authority of Singapore is supporting three sustainable finance centres; Singapore Green Finance Centre (SGFC), Sustainable Finance Institute of Asia (SFIA), and Sustainable and Green Finance Centre (SGFin).¹⁴ In February 2022, MAS and the Institute of Banking and Finance Singapore (IBF) launched the Sustainable Finance Technical Skills and Competencies (TSCs) to provide robust, common level of sustainable finance proficiency, knowledge and abilities needed for individuals to perform various roles in sustainable finance.¹⁵

United Kingdom

The Green Finance Institute, established with the support of the UK Government and City of London, hosts the Green Finance Education Charter¹⁶ which is designed to build the capacity and capability of the *green finance sector* by ensuring all financial services practitioners have the skills necessary to accurately assess climate and nature-related risk and opportunities. The Charter brings together professional bodies in a commitment to integrate green and sustainable finance principles into the education and training programs of finance professionals.

Ireland

In Ireland, the Sustainable Finance Skillnet¹⁷ works to upskill those employed within both the financial services sector and corporate Ireland to be leaders in the area of sustainable finance and where Environmental, Social and Governance (ESG) skills are an imperative. It aims to establish Ireland as a world-class sustainable finance knowledge centre and to support Ireland's climate change and Ireland for Finance strategy.

Japan

Japan's Financial Services Agency Second Report of the FSA Expert Panel on Sustainable Finance¹⁸ focuses on skills and competency. The report outlines the importance of skills maps, understanding scientific knowledge and integrating sustainable finance into finance-related courses at universities.

Hong Kong

Hong Kong Monetary Authority has supported the establishment of the Centre for Green and Sustainable Finance (GSF Centre) to "build capacity and enhance talent and data resources for the financial industry."¹⁹ A Pilot Green and Sustainable Finance Capacity Building Support Scheme is currently in development.

Australian developments on sustainable finance skills: APRA

Climate Risk Self Assessment Survey

In August 2022 APRA published the findings of its climate risk self-assessment survey²⁰ conducted across the banking, insurance and superannuation industries. A key focus of the self-assessment survey was skills and competence.

- Over one third of institutions (36%) reported that they have not defined roles and responsibilities across any risk functions. This suggests that this is a relatively less mature area, and APRA considers it appropriate for institutions to formally articulate functional roles and responsibilities as a matter of good practice.
- 77% of institutions responded that their board, or a subset of their board, has undertaken climate risk training and 58% of these have provided the board with training in the last 12 months, suggesting a growing recognition of the importance of board familiarity with respect to climate risk issues.
- 42% said that climate risk has been considered in the composition of the board, with one or more members of the board having expertise or experience in climate or ESG risk.

Prudential Practice Guide CPG 229 Climate Change Financial Risks

In November 2021 APRA released its final prudential practice guide on climate change financial risks.²¹ CPG 299 embeds skills and expertise as a core element of regulatory supervision, stating:

- A prudent board is, in overseeing the management of climate risks, likely to ensure an appropriate understanding of, and opportunity to discuss, climate risk at the board and sub-committee levels, which may include appropriate training for board members.
- An institution's senior management would typically be responsible for ensuring that adequate resources, skills and expertise are allocated to the management of climate risks, including thorough training and capacity building amongst relevant staff.

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Analysis and insights

1. Climate skills development requires a sustainable finance learning ecosystem

Internationally and domestically, regulators are beginning to scrutinise and require greater accountability around climate skills. Financial supervisors and domestic authorities are responding with initiatives to support climate and sustainable finance skills development. In this context, climate and sustainable finance skills development needs to be seen from a competitive perspective. Jurisdictions that do not respond quickly risk falling behind.

Survey responses in the study present a picture of limited supply of climate skills in Australia, uncertainty around what skills are needed and lack of information or access to relevant training resources. This raises concerns about a gap between the skills that are needed and the skills that are available in the financial system to adequately manage and respond to climate risk – a gap that will continue to grow if not addressed. There are parallels with identified skills gaps in the energy sector. Research has identified that Australia currently has an undersupply of the skills needed to build and maintain renewable energy infrastructure at the scale required to rapidly decarbonise the electricity system.²² At worst, this could delay the deployment of renewable energy infrastructure and achievement of emissions targets.

Financial system participants integrating climate considerations into financial practices face a number of challenges. Firstly, climate impacts on a broad range of functions from accounting through to risk management and assessment of investment opportunities. Climate scenario analysis, for example, typically involves risk management professionals who may not have historically had responsibility for climate-related issues in their roles.

Secondly, climate and sustainable finance skills requirements are likely to evolve. The likelihood is that skills will need to be constantly updated to reflect evolving management and regulatory practices as well as the continued evolution of climate science and the need to reallocate capital to sustainable activities.

Building climate skills will not be a matter of attending a single training or education program, rather, learning will need to be part of continual professional development and recognised as such.

There is a need for an Australian sustainable finance learning ecosystem that can respond rapidly to immediate skills needs, is able to respond to new demands over time and is linked to competency frameworks.

2. Australia does not yet have a sustainable finance learning ecosystem

While there are examples of individual sustainable finance learning and training offerings available in the market, the Australian financial system does not yet have a sustainable finance learning ecosystem that supports regular learning, and generation of new knowledge.

There is no system-wide coordination to identify and address sustainable finance skills needs and no specific mechanism or governance forum for assigning appropriate baselines, benchmarks and standards for such skills.

The survey of sustainable finance professionals indicates the extent of training uptake may be limited. While undoubtedly there are leaders within the finance system, research findings suggest that this is neither widespread nor even well understood across the finance system.

There is a potential early mover advantage for organisations who are able to attract talent, making it more difficult for other organisations to recruit for climate skills. This may result in increased costs for organisations that need to outsource skills. Outsourcing to address skills gaps within organisations is unlikely to be sustainable beyond the short-term and does not support organisational learning. There are potentially significant consequences if financial system practitioners are not up to date with the latest developments around issues including climate change impacts related to biodiversity (natural capital) and inequality.

If financial system participants are not sufficiently skilled or business practices are not updated, in areas such as insurance, lending and investment, it could lead to a worsening of the risks and impacts on the stability of the financial system. It could expose financial sector organisations to litigation risk. It could, at worst, impede the rapid, economy-wide decarbonisation and reallocation of capital needed to meet the Paris Climate Goals and the Sustainable Development Goals. As overseas financial markets move to upskill, Australia risks being left behind.

A sustainable finance learning ecosystem therefore needs to be considered as essential to the effect and efficient operation of Australia's financial system.

Given the urgency of the challenge of integrating climate-related risks into financial system practices, a significant question is how can a sustainable finance sector learning ecosystem be quickly established in Australia?

We propose two key mechanisms for consideration:

- Partnership to establish a sustainable finance learning ecosystem
- An annual survey and report on sustainable finance employment and skills to monitor and facilitate strategic development and implementation of core competencies.

3. Sustainable Finance Skills Partnership

There is an urgent need to establish a learning ecosystem to develop the skills required by the finance system to support Australia's transition to net zero emissions. This demands a coordinated effort from industry, government, professional bodies and the education, training and research sectors. It will not be sufficient to continue with piecemeal and small-scale and otherwise uncoordinated skills development offerings and initiatives.

A Sustainable Finance Skills Partnership is proposed as a mechanism to institutionalise coordination and collaboration on skills development across Australia's education and research sectors, government and financial services industry bodies and regulators.

Australia's education and research sectors have an important role to play building the sustainable finance skills for Australia's future. This extends to a role in building skills and competencies and establishing and maintaining agreed standards across a range of financial system functions to support the transition to net zero.

A Partnership would enable educators and researchers to support Australia's financial system, and potentially Asia-Pacific financial systems, to transition to net zero.

Key elements of a sustainable finance skills partnership:

- Collaboration across the finance system, between industry, government, regulators, educators, researchers and other professional finance training providers, on sustainable finance skills, to identify and plan for the skills development needed.
- Identifying and planning to address structural changes in financial system regulation that has implications for skills development, such as potential implementation of ISSB standards or a sustainable finance taxonomy.
- Convening Australian universities, research organisations and other providers of education, training programs and technical capability to share and develop best practice in sustainable finance skills development.
- Providing a mechanism for regional and global engagement around skills with potential international partners.

4. Australian Sustainable Finance Skills Report

The need for climate-related financial skills will shift over time. As market demand increases for particular skills, it can be expected that market supply will increase. However, without foresight of how supply issues will be strategically addressed, there is a risk that skills may not be acquired quickly enough. New climate skill requirements may emerge in areas that are not currently anticipated.

There is currently no structured system-wide mechanism to identify and monitor climate or sustainable finance skills and competency to an agreed standard. The sustainable finance professionals climate skills survey provides a snapshot of the status of climate skills and insights to stimulate a conversation, but it is relatively small-scale and focuses on a sub-set of sustainable finance skills.

Since 2016, the US Energy and Employment Report (USEER)²³ has provided a comprehensive summary of energy sector employment, workforce, industry, occupation, unionisation, demographic, and hiring information by energy technology groups. It combines business surveys with publicly available data, to enable tracking of skills and employment within key energy sectors. In Australia, research undertaken by ISF and others has provided insights on Australian energy sector employment, skills and gaps, but there

has been no sector-wide, government-led equivalent to the US report until now. For the first time in 2022, the Australian government is preparing an Australian Energy Employment Report,²⁴ which will be Australia's first national energy workforce survey. This will provide critical data to support Australia's transition to clean energy.

An annual survey and report that identifies and monitors sustainable finance skills and competency across the financial system, would provide valuable data on skills needs and gaps relating to achievement of climate and other sustainability goals.

A government and industry-backed widescale survey would enable tracking of the strategic development of sustainable finance skills over time, it would provide critical insights to the Sustainable Finance Skills Partnership and would contribute to the effectiveness and efficiency of a sustainable finance learning ecosystem.

5. Supporting mechanisms

The climate skills survey and related research provide insights into a number of supporting mechanisms that would assist in climate and sustainable finance skills development:

- At the national level, there is the need for strategic policy and associated regulatory settings to provide an overall framework for development of sustainable finance skills and competencies. Ireland, for example, has developed a strategy for the development of its financial services sector to 2026 which articulates a vision for Ireland to be a leader in sustainable finance that will be “realised by developing the skills base for people at all stages of their career and across all sectors of international financial services. A clear commitment to sustainable transformation and investments will underpin the ambitions.”²⁵
- Agreement on, and implementation of, sustainable finance-related standards would help to clarify the knowledge, expertise and competencies required. Internationally, sustainable finance-related standards are converging around reporting, disclosure and categorisation with prominent examples including the establishment of the ISSB and taxonomies to classify sustainable economic activities.
- Competency frameworks support capacity development by providing clarity around performance expectations. Once skills requirements are clarified, they can be translated into measurable competencies through competency frameworks like Singapore’s Sustainable Finance Technical Skills and Competencies. Sustainable Finance Ireland’s Sustainable Finance Skills Report found that there is a need to create a baseline of sustainable finance education amongst financial services professionals, proposing an Institute of Sustainable Finance Professionals.²⁶ A starting point for a competency framework could be to develop minimum or core competency requirements for Boards and senior management, as indicated in APRA’s Prudential Practice Guide CPG 229.
- Once competency frameworks are established, they can be further embedded through practical mechanisms such as linking sustainability or ESG outcomes and KPIs to performance assessment and remuneration.

Key insights

We propose two key mechanisms to deliver progress on skills development:

1. Sustainable Finance Skills Partnership

There is a need for immediate establishment of a Sustainable Financial Skills Partnership between industry, government, regulators, universities, researchers and other professional finance training providers. The Partnership could be led by a consortium consisting of the Australian Government, industry, academia and research institutions and would provide a mechanism for collaboration across Australia's financial system on sustainable finance skills. The Partnership would identify and plan for the skills development and training needed to support Australia's financial system, and regional financial systems, to support transition to net zero carbon emissions. A Sustainable Finance Skills Partnership would provide a mechanism to bring together professional bodies to strategically link skills development to competency assessment and performance frameworks.

2. Australian Sustainable Finance Skills Report

There is a need for development of an annual Australian Sustainable Finance Skills Report to understand the current state of play, track the strategic development of sustainable finance skills and competencies over time, and benchmark performance internationally. It would provide critical strategic insights to the Sustainable Finance Skills Partnership and would contribute to the effectiveness of a sustainable finance learning ecosystem. It would provide data for financial system participants including governments, regulators, banks, investors and insurers to identify and proactively respond to skills gaps that could otherwise impede Australia's transition to net zero emissions. Like the Australian Energy Employment Report, implementation of the survey and report could be led by the Australian Government with support from industry and academia.

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