



RESILIENT FUTURES
INVESTMENT ROUNDTABLE



CLIMATEKIC
Australia

RESILIENT FUTURES INVESTMENT ROUNDTABLE CONCEPT PAPER

A Pathway Towards Systemic Resilience Investment



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Introduction

This concept paper was developed through a collaborative process as part of the Resilient Futures Investment Roundtable (RFIR). The RFIR is a coalition of public, private, research and not-for-profit organisations. Members work collaboratively to share knowledge, experience and expertise to increase the flow of investment in resilience-building projects. These investments aim to protect Australian communities and allow them to thrive in an uncertain future.

Climate resilience is a complex, systemic challenge that requires a systemic response. Taking a systems approach means considering the interdependencies and feedback loops within these systems. It involves understanding how changes in one part of the system can ripple through others, and how interventions in one area might have unintended consequences elsewhere. This approach requires organisations to think beyond short-term fixes and consider long-term, sustainable solutions that address the root causes of vulnerability to climate impacts.

Building capability for a systems approach to resilience investment represents a signification shift in mindset, from a reactive approach to a proactive one that anticipates and prepares for future challenges. This concept paper outlines a conceptual framework to assist decision-makers to apply systemic principles to build an investment case for resilience action. To demonstrate an increasingly systemic approach to resilience investment, sequential **'ABCD'** framing describes four stages that demonstrate a stacking of objectives, risks, opportunities, values, costs and benefits associated with an increasingly systemic approach to resilience investment. It supports organisations to move from taking a narrow view of assets in place through to taking a systemic view that considers how a decision interacts with interconnected systems and aligns with a long-term vision for a place.

This **'ABCD'** framing positions investment options according to their application of systems principles. This provides a 'language' to support discussion, including about how ambitious organisations want to be in applying systems principles.



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Part 1: Making the case for a systemic approach to resilience investment

As climate change intensifies, impacts of disasters on the economy, nature and communities continue to rise. Investing in resilience now can avoid future losses, and can also create value across economic, social, environmental and governance domains. Despite the growing recognition of the urgent need to build resilience to the impacts of climate change and disasters, there remains a substantial shortfall in funding for resilience solutions¹.

The Resilient Futures Investment Roundtable (RFIR) is a coalition of public, private, research and not-for-profit organisations working to address this gap by developing resources to improve decisions around when, where and how to invest in resilience. To increase the flow of investments to resilience-building activities, the members of RFIR have leveraged their collective expertise and experience to create resources and case studies that build capacity and capability for organisations to invest in resilience.

The members of the RFIR have defined a robust approach to resilience investment decision-making as one that adopts a systemic, multi-hazard perspective over the lifespan of investment, and considers interconnections and external factors.² A scan of available approaches identified many initiatives, frameworks, standards, tools and methodologies in a dynamic landscape. However, few tools were aligned to our agreed definition of a robust approach that enables a systemic perspective.³ The challenges of applying systems thinking to resilience investment emerged as a significant obstacle.

A systemic approach ensures that decisions about resilience investment encompass the broader advantages that resilience can bring to communities, businesses, and the environment. This broader perspective can significantly strengthen the business case for investing now in interventions that enhance resilience across systems, which might otherwise be overlooked with a narrow focus on short-term financial viability. Over time, building capability for systems thinking in resilience investment can unlock innovative investment models and generate both expected and unforeseen value.

¹ [Special report: Update to the economic costs of natural disasters in Australia, Australian Business Roundtable for Disaster Resilience and Safer Communities, Deloitte Access 2021](#)

² A comprehensive overview of the RFIR definition of a robust approach to resilience valuation can be found in the Resilience Valuation Initiative Statement 1: [Functional and reliable: what organisations want from an approach to value resilience](#)

³ A summary of the findings of the scan of the emerging resilience valuation landscape can be found in the Resilience Valuation Initiative Statement 2: Valuing Resilience: [Seeking opportunities from across the landscape](#)

Systemic risk and resilience

Resilience is the process of preparing for the impacts of climate change by ensuring that human and natural systems can anticipate, absorb, or adjust to disasters and climate hazards.⁴ To reduce climate change risks, it is crucial to understand what causes them and where we can make a difference.

Climate change risks arise from the interaction of hazards, vulnerabilities, and exposures. Hazards encompass the various adverse events associated with climate change, such as extreme weather phenomena. Vulnerabilities are the susceptibilities of systems, communities, or ecosystems to these hazards, often influenced by factors like socio-economic status or infrastructure resilience. Exposure refers to the extent to which entities are subjected to the impacts of these hazards, influenced by factors like geographical location or population density.

These risks cross boundaries between different sectors and areas of authority, affecting interconnected systems.⁵ Climate change and disasters can lead to cascading risks, where disruptions from extreme weather causes a chain of impacts across multiple sectors. Complex risks happen when different climate hazards occur at the same time or interact with each other, compounding overall risk and causing risk to spread through connected systems and across regions. It is therefore critical that these interdependencies are taken into consideration when planning how to adapt to climate change, and where to invest to build resilience to the impacts of climate change.

Systemic risks are multifaceted and interconnected. They are emerging in a world of frequent and compounding hazards that interact with our complex economic, social and environmental systems. Addressing the challenges of systemic risks requires aligned organisational strategies. Incorporating systems thinking into business decision-making serves a primary purpose to increase the effectiveness of an organisation's strategy and investment in resilience by ensuring that they are designed with consideration of the real-world context they influence and are influenced by.

Systemic resilience then, is the ability of a system to anticipate, absorb, recover and adapt to unforeseen shocks.⁶ Systemic resilience acknowledges that shocks are inevitable, even if they are difficult to predict with accuracy. It builds on risk management by thinking about how to anticipate, avoid and limit damage, but also consider how a system recovers and adapts.

⁴ IPCC (2022). *Climate Change 2022: Impacts, Adaptation and Vulnerability*. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change

⁵ IPCC (2023b). *Climate Change 2023: Synthesis Report*. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change

⁶ OECD (2020), *A Systemic Resilience Approach to dealing with Covid-19 and future shocks*, New Approaches to Economic Challenges, Paris

Systemic resilience investment

Climate change is a systemic problem that permeates every aspect of our lives—from the economy and infrastructure to public health and social equity. This interconnectedness means that the impacts of climate change don't occur in isolation; they cascade across systems, triggering complex, often unforeseen consequences. For example, a single extreme weather event can disrupt supply chains, displace communities, strain public services, and degrade natural ecosystems—all at once.

Communities, private sector organisations and all levels of government are grappling with multiple challenges for planning and financing that ensure that Australia's regions, economies and ecosystems are climate-adapted, disaster resilient and able to continue to thrive as the climate changes. Despite the urgency to adapt and build resilience, investments are not being made in resilience at the rate and scale needed to address the challenges ahead.

There are challenges associated with developing a strong business case for resilience investment. While it may seem a simple process of inputting the costs of works undertaken compared with expected savings, creating a strong business case for resilience investment can be challenging due to a variety of factors⁷, including:

- Incentives and capabilities of organisations are misaligned for managing systemic climate risks.
- Climate resilience investments often yield benefits in the long-term, while investors and policy makers tend to seek short term results.
- The benefits of resilience are probabilistic and hard to quantify, and available methodologies struggle to consider the systemic and uncertain nature of climate risks, or the opportunities to create and protect value for wider beneficiaries.
- It is often difficult to assess and quantify the economic value of avoided damages and other indirect benefits of resilience investments.
- Resilience does not have a clear objective or end state. This can be contrasted with the clear goal of mitigation efforts, which for example can aim to achieve a clear and measurable goal such as net zero emissions.
- To be effective, resilience interventions need to be tailored to the specific place and its unique characteristics, such as geography and environmental factors, cultural and social considerations, and resource availability. This small scale makes scaling up investment difficult, particularly for private sector investors.
- There is a high degree of uncertainty around the size of future climate risks, the level of adaptation needed, and the effectiveness of adaptation and resilience interventions.

⁷ For more information about overcoming the challenges to investing in resilience, see CSIRO's [Enabling Resilience Investment](#) and Climate-KIC's [Adaptation Finance Project](#).



Despite these challenges, experience has shown that there are many benefits that flow to communities, the economy and the environment from investing in resilience. Benefits can be direct, indirect, tangible and intangible. Table 1 shows examples of different benefits that can flow from investments in resilience.

	DIRECT	INDIRECT
TANGIBLE	<p>Direct Tangible Benefits: These are the immediate and measurable advantages resulting directly from climate resilience investment:</p> <ul style="list-style-type: none"> • Reduced infrastructure damage and maintenance costs due to better resilience to extreme weather events • Increased agricultural productivity and food security through resilient farming practices • Lower insurance premiums for businesses and homeowners in resilient communities 	<p>Indirect Tangible Benefits: These are the secondary positive outcomes that arise as a result of climate resilience investment but may not be immediately apparent:</p> <ul style="list-style-type: none"> • Boosted local economy through job creation and increased investment in resilient infrastructure • Enhanced public health outcomes due to improved air and water quality resulting from resilient urban planning • Greater energy efficiency and reduced carbon emissions from investments in renewable energy and green building practices
INTANGIBLE	<p>Direct Intangible Benefits: These are immediate but less quantifiable advantages of climate-resilient investment:</p> <ul style="list-style-type: none"> • Enhanced community cohesion and social capital through collaborative resilience-building efforts • Improved quality of life and well-being for residents in climate-resilient cities and neighbourhoods • Enhanced reputation and brand value for businesses that prioritise climate resilience and sustainability 	<p>Indirect Intangible Benefits: These are longer-term or less tangible positive outcomes:</p> <ul style="list-style-type: none"> • Preserved cultural heritage and ecosystem services through sustainable land management and conservation practices • Increased social equity and environmental justice through inclusive and participatory resilience planning processes • Enhanced adaptive capacity and innovation in response to future climate challenges

Table 1 Examples of direct, indirect, tangible and intangible benefits of resilience

Taking a systemic approach helps to identify and value the direct and indirect, tangible and intangible benefits that flow through communities, businesses, and the environment when investments are made in resilience. It also helps to identify a broader set of beneficiaries, which can unlock funding opportunities. The broader indirect and intangible benefits can be hard to quantify, but recognising them allows for an improved understanding of the true impact of climate resilience investment. These benefits create positive feedback loops and virtuous cycles where economic, environmental, and social benefits flow from each other to improve quality of life now and into the future.

Understanding how different contexts influence strategic decisions is essential, particularly when the goal is to maximize these benefits across various domains. The Cynefin Framework⁸ offers a tool for describing how strategies and approaches must adapt depending on the complexity of the environment in which an organisation operates. This framework helps clarify how to effectively approach problems that range from simple to complex, ensuring that resilience investments are strategically aligned to generate the most significant impact.

Complicated situations are those in which cause and effect are detectable but separated over time and space. In these situations, there is a stable environment, short-term time horizon for the intervention, clear boundaries in terms of time and resources, and no disagreement over the means and ends of achieving outcomes.⁹

Complex situations are those in which cause and effect are understandable in retrospect but cannot be predicted because of the multitude of external factors beyond the control of the intervention. They are dynamic, occurring in unstable environments, with no set timeframe for intervention, with multiple different means for achieving outcomes, and a range of perspectives on how and what outcomes should be achieved.

Climate change is a complex situation¹⁰ within the Cynefin framework, but decisions around how to invest in climate resilience often treat the challenge as complicated. This can lead to a mismatch in the resilience investment approach compared to the nature of the problem.

When making a decision about how to invest in resilience, a useful first step is to think about whether the investment context requires a complicated or complex approach. The type of questions asked by an organisation where strategies respond to ‘complicated’ versus ‘complex’ system dynamics will be different.

Given this complexity, systemic solutions are needed. Addressing the challenge of resilience investment requires more than isolated, sector-specific interventions; we need comprehensive approach that considers the interdependencies and feedback loops within and between systems. Systemic solutions take into account the broader context—how actions in one area can create positive or negative outcomes in another. By thinking systemically, we can design interventions that not only address the

⁸ Kurtz, C. F., & Snowden, D. J. (2003). The new dynamics of strategy: Sense-making in a complex and complicated world. *IBM systems journal*, 42(3), 462-483.

⁹ Baser, H., & Morgan, P. (2008). *Capacity, change and performance: Study report* (pp. 1-166). Maastricht: European Centre for Development Policy Management.

¹⁰ IPCC (2023b). *Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, pp. 35-115, doi: 10.59327/IPCC/AR6-9789291691647

immediate impacts of climate change and disasters but also strengthen the resilience of the entire system, making it more robust against future shocks and stressors.

In contrast, traditional approaches often focus on isolated problems, treating symptoms rather than root causes. This can lead to short-term fixes that may inadvertently exacerbate other issues or miss opportunities for more effective, holistic solutions. For instance, building a flood barrier might protect a specific area but could increase flooding elsewhere or neglect the underlying social and economic vulnerabilities that contribute to the risk.

Table 2 shows how the type of questions change depending on a complicated or complex understanding of the environment.

Strategic questions in ‘complicated’ systems	Strategic questions in ‘complex’ systems
How can I create a business case for resilience?	How are markets for resilience investment shaped and how can we influence this?
Investment logic: How do we reduce risk?	Investment logic: How do we unlock strategic synergies and benefit-maximising opportunities?
How can we reduce uncertainty?	How can we thrive in uncertainty?
Scarcity mindset: how do we allocate limited public funding for resilience?	Abundance mindset: How can public and private sector investments in resilience create value for communities, nature and the economy?

Table 2 Strategic questions for complicated and complex systems

There may be good reasons why an organisation in a particular context might choose approaches that don’t align with a ‘complex’ mindset. For example, in a crisis, decision-makers need to act quickly to solve rapidly emerging problems and so may have to remove aspects of complexity from their frame of reference. Or an organisation might also be dealing with a discrete challenge that naturally fits in a complicated worldview, for example an upgrading road subject to certain technical challenges and investment is optimised by balancing defined and known variables.

Like any decision about where to allocate limited funding, resilience investment decisions involve trade-offs and synergies between different elements. A systemic approach enables decisions-makers to consider the diverse impacts, costs, and benefits on various aspects, and avoid maladaptation or sub-optimal solutions that may neglect indirect factors.

Managing complexity and shifting towards a more systemic approach represents a significant change for most organisations, but an important one given the systemic nature and global scale of climate crisis. In the next section, we use sequentially stacked framing to conceptualise a pathway towards managing complexity in the context of a changing climate.

Part 2: Introducing the ABCD Framework

The pathway described in this concept paper draws on the outcomes of the Cobargo Disaster Recovery and Energy Transition demonstration project¹¹ which was led by CSIRO in the aftermath of catastrophic bushfires in 2019-2020. In Cobargo, residents identified that energy insecurity was a major barrier they faced during and after the bushfires. A community-led effort identified pathways, costs, risks, and benefits of investing in a new renewable energy facility in a disaster-recovery context.

Four stacked scenarios for energy transition were co-developed by CSIRO, Value Advisory Partners and the Cobargo and District Energy Transition to help decision-makers gradually shift their thinking and strategies from protecting individual assets to considering the interconnectedness of energy assets within and across systems. The ABCD scenarios demonstrate the value of systems thinking and bringing diverse stakeholders together to work across systems towards a vision for a place

This concept paper applies insights and scenarios developed in Cobargo in the context of energy transition to resilience investment in general.

A coordinated effort across diverse stakeholders is needed to improve the way that business cases are developed for resilience investment. This will often require novel processes, governance structures that enable flexible and cross-disciplinary collaborations, and ways to deal with uncertainty in decision-making. Establishing novel processes, agreements and ways of working presents an upfront cost of both time and resources. However, once these new processes have been adopted the costs are lower for future resilience investment.

The ABCD framework for systemic resilience investment was developed from the scenarios co-developed by CSIRO and Value Advisory Partners through the Cobargo Disaster Recovery and Energy Transition project. It offers a pathway to help integrate systems thinking into resilience investment, making it easier to build a strong case for investing in resilience measures that benefit a broad range of beneficiaries.

The framework describes four stages:

Stage A: Valuing avoided losses

Focus on a single asset, incorporating future climate risks into traditional cost-benefit analysis. This strengthens the business case by highlighting potential savings from avoiding future disaster losses.

¹¹ O'Connell, D., Meharg, S., Flett, D., Armstrong, Z., Muller, F., Mitchell, J., Mortimer, G., Gorddard, R., Marinopoulos, J., Wise, R., Heinmiller, P., Tieman, G., Mesic, N. 2023. *What it takes to create an enabling environment for resilience investment: A town like Cobargo*. CSIRO, Australia.

Stage B: Valuing co-benefits

Expand the assessment to include indirect and intangible benefits, considering broader social, environmental, and economic impacts. This justifies investments by demonstrating multiple benefits beyond just avoided losses.

Stage C: Valuing synergies, stacked benefits and adaptive capacities

Broaden the focus to consider system-wide interrelationships and collaborative efforts. Partnerships and synergies are key to maximizing the impact of resilience investments and adapting to complex risks.

Stage D: Maximising value and unlocking opportunities

Adopt a systemic approach with a long-term vision, integrating multiple initiatives to create value across systems. Collaboration and innovative governance help unlock opportunities and ensure investments benefit a wide range of stakeholders.

These stages represent a spectrum of approaches to resilience investment, moving from protecting discrete assets to addressing interconnected systems. At one end, Stage A focuses on narrowly optimizing resilience for individual assets by valuing avoided losses. As the stages progress, the approach broadens: Stage B incorporates co-benefits, while Stage C emphasizes synergies and adaptive capacities within broader systems, encouraging collaboration and partnership. Finally, Stage D embodies a complex, transformative approach, where resilience investments are guided by a systemic vision, integrating multiple initiatives to create value across interconnected systems. This continuum reflects a shift from optimizing within a narrow scope to embracing the complexity of systemic resilience. This mapping of the stages is shown in [Figure 1](#).

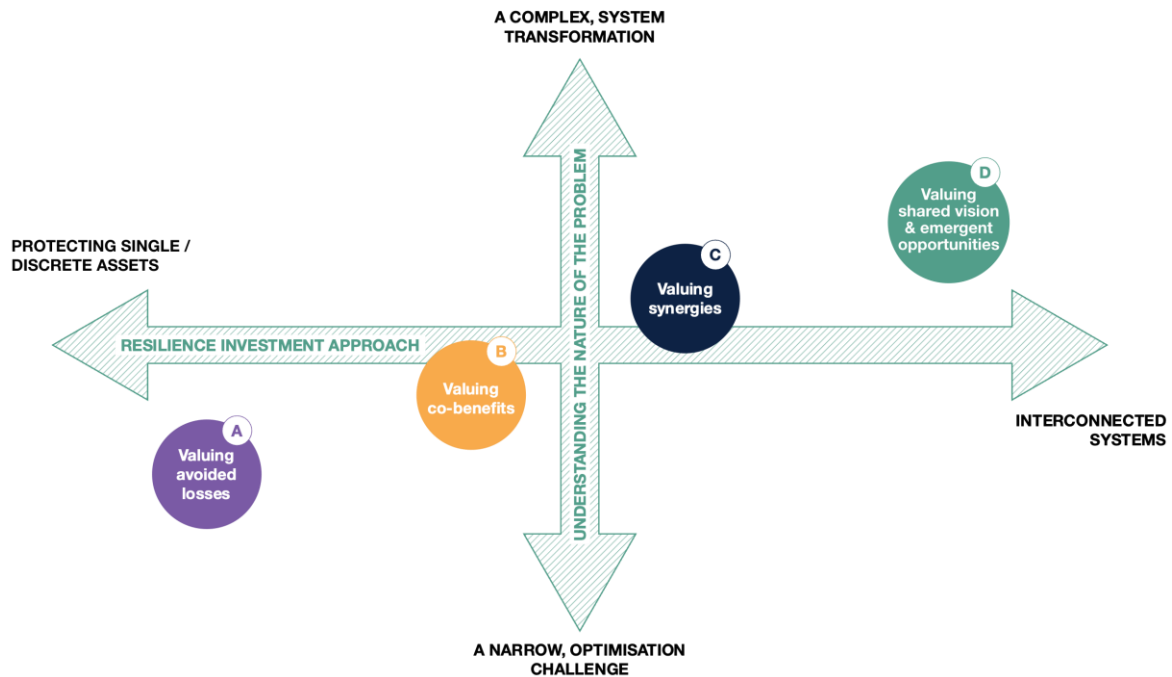


Figure 1 Mapping the ABCD stages

Stages A and B are shaped by traditional approaches to investment that tend to treat the world as a complicated machine. Economy-of-scale logic where efficiencies are optimised, and risks are managed through better, more accurate data on the cause-and-effect relationships are most relevant in this space. In this context, Stages A and B do incorporate greater complexity than a traditional cost-benefit approach to business case development, for example by using scenarios to consider future climate risk, or by incorporating broader metrics to consider economic, social and environmental costs and benefits as well as financial.

The pathways for action in the complex space – Stages C and D – draw on the 2021 Systemic Disaster Risk Handbook (the Handbook), which supports decision-makers from all sectors to adopt a systemic approach to disaster risk.¹² The Handbook presents principles for systemic disaster risk reduction, inclusive governance and decision-making to support all sectors to adopt a mindset focussed on systemic risk. The principles signpost key activities and ways of thinking that can be incorporated into resilience investment decision-making to better acknowledge the systemic and complex nature of disaster risk.

As systems thinking unlocks a broader view of investment, a suite of trade-offs, opportunities and challenges will emerge. While the framework positions Stage D as

¹² Systemic Disaster Risk (AIDR 2021) <https://knowledge.aidr.org.au/resources/handbook-systemic-disaster-risk/>

the most systemic approach, in practice, many of the values might not be possible or feasible to realise in real-world contexts. For example, an organisation could see that in Stage C there is the possibility to invest in a two-way energy-flow where their electrification and net zero strategy provides resilience benefits by increasing energy system flexibility. This is a higher value model, however access to this value is often unlocked through partnerships, which brings challenges in governance and collaboration. The organisation must make a judgment on whether potential partners are actually ready to partner. A similar assessment could be made to determine technology maturity is developed to a point that is sufficient to make an investment. At the different stages, organisations will have the opportunity to identify and assess trade-offs between risk, value, adaptive capacity and transaction costs and broader benefits.

This approach differentiates between responding to ‘complicated’ and ‘complex’ system dynamics. There is a continuum of complicated to complex, and Stages B and C describe potential pathways or strategies that may be useful and practical stepping stones to a fully embedded approach that is complex. In the context of systemic climate risk, the earlier stages of the framework favour more narrow approaches to vulnerability and exposures analysis, focusing on a particular asset or intervention. Later stages broaden this focus to the root causes of vulnerability and exposure, and how the vulnerabilities are created by interconnectedness assets, services, people and place. Stage D integrates an individual organisations approach within a broader vision for resilience for a place where actions both support and benefit from the opportunities that emerge when a place thrives.

There is potential for maladaptation that comes from a narrow focus on a single asset. It can lead to investment in interventions that resist change and build resilience of the asset in place, without considering the systems in which it operates. In comparison, a systems understanding of risk and resilience can reveal alternative solutions that factor in interconnections and interdependencies across systems. This systemic approach has the potential to lead to different investment decisions with long-term benefits flowing to diverse beneficiaries.

Table 3 is a high-level overview of what aspects are considered as an organisation moves along Stages A to D in their resilience investment logic. The second half of the table describes the shifts in costs as well as value (including financial value) from Stages A to D. It makes it clear that while transaction costs increase in Stage D, the value unlocked will be far greater. It allows for more strategic discussion within an organisation on the trade-offs between costs (particularly short-term upfront costs) and value (both short-term and long-term).

In the next section, we take a more detailed look at how objectives and outputs differ from Stages A to D. The guide brings a holistic and grounded decision approach for resilience investment. It is intended to be a strategic and conceptual tool for resilience investment decision making.

Table 3 Identifying the characteristics and trade-offs of the ABCD Stages of systemic resilience investment

		Traditional risk and economic assessment and management		←————→		Coping with uncertainties through scenario analysis and robust decision-making	
Key driver of change		Valuing avoided losses	Valuing co-benefits	Valuing synergies, stacked benefits and adaptive capacities	Valuing a shared vision and emergent opportunities		
Stage	Business-as-usual	A	B	C	D		
Characteristics	Scope	Asset	Asset	Asset	Integrated	Aligned portfolio of complementary interventions	
	Focus	User-focus	User-focus	Place and community-focus	Place, community and systems focus	Place, community, and system focus aligned to shared vision	
	Beneficiaries	Monetised for benefit for asset users	Monetised for benefit for asset users	Emerging diverse beneficiaries and beneficiaries	Diverse benefits (natural, social, economic for multiple beneficiaries)	Diverse benefits (natural, social, economic for multiple beneficiaries)	
	Assessment Type	Economic impact assessment	Economic impact assessment	Broader assessment - natural, social, economic and governance assessment	Integrated resilience, adaptation and DRR assessments	Integrated resilience, adaptation and DRR assessments	
	Transaction costs	Low	Low	Medium	High	Very High	
Trade-offs	Value protected	Low	Low	Medium	High	Very High	
	Value created	Low	Low	Medium	High	Very High	
	Effectiveness in complexity	Low	Low	Medium	High	Very High	

Part 3: Implementing the ABCD Framework

In this section, we explore in greater detail what an increasingly systemic approach to resilience investment looks like.

The activities described in the different stages are indicative only. For example, it may not be necessary or suitable to undertake an integrated risk assessment and cost-benefit analysis when making every resilience investment decision. But integrating these processes can enhance the effectiveness and reliability of decision-making processes, particularly because climate change introduces additional uncertainties into investment decision-making processes.

There are many tools available, and finding the right tool or methodology can be challenging. Additional resources that shed light on the array of tools that can be accessed and where they can be applied can be found in the Asia Investor Group on Climate Change's [Compendium of Tools and Service Providers for Investors in Asia](#) and Resilience Rising's [Resilience Toolbox](#). Keep in mind that many available tools are limited in their ability to support a systemic approach that recognizes the complexity and interconnectedness of resilience building. Instead, they often focus on specific sectors, risks, or contexts. The following stages demonstrate how to develop the capability for a systemic approach, with each stage building upon the previous one.

Detailed Description of the Stages

Stage A. Contained single asset: Valuing avoided losses

When making a decision about whether to invest in building resilience of an asset, supplement a traditional cost-benefit analysis with a longer-term view by incorporating future climate risk and the value of avoided losses in a future characterised by more frequent and severe disasters. Estimating the value of avoided losses when an asset can withstand future climate and disaster impacts can strengthen the business case for resilience investment.

Outputs

- Risk assessment that integrates future climate and disaster risk.
- Investment case inclusive of cost-benefit analysis incorporating assessment of future avoided losses and any direct benefits to the funder/financier of the action. This analysis allows decision-makers to weigh the cost of the investment against the potential benefits of avoided losses, taking into consideration the impacts of a changing climate.

Outcomes

- Decisions made about when, where, and how to invest in resilience consider future climate and disaster risk, helping to future-proof decisions made now.



- The business case for greater investment in resilience is strengthened by demonstrating the future avoided losses.
- Investing early to strengthen resilience and avoid losses saves money in the short and long-term.

Examples from Practice

[AustralianSuper's Physical Climate Risk Assessments](#)

[Queensland Reconstruction Authority Cost-Benefit Analysis](#)

Stage B. Multi-faceted single asset assessment: Valuing co-benefits

As well as avoided losses, factor in indirect and intangible co-benefits into a multi-faceted risk assessment and cost-benefit analysis. This incorporates broader social, environmental, governance and economic factors. At this stage, a multi-faceted assessment is still focussed on a single asset, but begins to consider more systemic impacts by considering how the benefits of resilience can flow to communities, businesses and the environment.

Outputs

- Risk assessment that integrates future climate and disaster risk and broader direct, indirect, tangible and intangible costs and co-benefits of resilience. This can include considering social factors such as community vulnerability, equity and justice, the role of ecosystems in providing resilience benefits, and potential job creation and economic development.
- Integrated cost-benefit analysis that accounts for broad social, environmental economic and governance costs and benefits of resilience.
- Business case that integrates social, environmental, and economic factors to assist in justifying and prioritising impactful resilience investment.

Outcomes

- Decisions made about when, where, and how to invest in resilience take into account the wider implications for the indirect users (beneficiaries) of the asset or service.
- Strengthened business case for investment by identifying co-benefits of resilience.
- Local expertise and community engagement are leveraged through a place-based approach.
- Novel approaches to funding finance begin to emerge, including investments from wider sets of beneficiaries that can facilitate faster and scalable responses, as needed.

Examples from Practice

[Sustainable Asset Valuation \(SAVi\) for Resilient Urban Planning in Johannesburg](#)

[Rethinking Resilience Investment in Queensland: Quantifying the socio-economic and environmental benefits of resilient road infrastructure with Sustainable Asset Valuation \(SAVi\)](#)

Stage C. Co-ordinated and diversified approach: Valuing synergies, stacked benefits and adaptive capacities

Stage C broadens the focus of analysis beyond a specific asset or intervention to also consider interrelationships within and across systems. This approach considers long-term strategic alignments, and allows for flexible and adaptive strategies to anticipate and respond effectively to future scenarios.

This broader focus means that alongside owners and direct users, a wider range of beneficiaries across communities, ecosystems, and economies can be considered. Identifying potential partners representing different segments of a sector or place can create opportunities to think about how climate risk is distributed across multiple organisations, and how working collaboratively to manage and treat that risk can benefit all partners and create opportunities for both risk management and resilience-building that an organisation acting in isolation would not be able to achieve.

Greater engagement with local communities and the beneficiaries of the investment can have several benefits. Firstly, it can help identify strategic synergies and benefit-stacking opportunities. Secondly, it can maximise the benefits of behaviour change associated with new people, organisations and groups gaining access to and recognising the benefits of resilience. Finally, it can enhance adaptive capacity through decentralised and diversified approaches that create non-critical points of failure. This allows diverse actors in a system to anticipate and respond effectively in a context of high uncertainty.

Outputs

- Governance structures that enable cross-disciplinary and cross-sectoral collaboration.
- Increased understanding of complex risk distribution across multiple actors and sectors.
- Mapping of flow of benefits and beneficiaries of resilience solutions.
- Partnerships that allow for scaling-up impact and enabling a more systemic approach.

Outcomes

- The complex and cascading nature of climate and disaster risk is recognised and incorporated into decisions about where, when, and how to invest in resilience.



- The impact of interventions by one organisation is amplified, replicated, and expanded on by partners willing to take a collaborative, adaptive approach.
- Novel financing options and opportunities for enhanced private sector engagement are identified.
- Increased opportunities for innovation with and across systems with participation of diverse stakeholders.

Examples from Practice

[Using the Enabling Resilience Investment Approach in Port Adelaide Enfield](#)

[Establishing Partnerships for Resilience: Telecommunications Resilience Investment Pilot of the Enabling Resilience Investment Approach](#)

Stage D. Integrated systemic approach: maximise value and unlock emergent opportunities

At Stage D, organisations take an integrated, systemic approach to unlock and identify emergent opportunities. Investment to build resilience is guided by a long-term, transformational vision. Decision-makers and partners recognise that progress may not follow a straight path, and embrace prototyping, learning, and refinement to reduce risks as they work towards a shared vision. Valuation considers both the combined value of a portfolio of initiatives as well the economic growth and the social and environmental benefits that happen with communities thrive.

Outputs

- Governance structures and capability that enable cross-disciplinary and cross-sectoral collaboration aligned with a shared vision.
- Valuation that accounts for adaptive capacity achieved through investing in community, intermediary and aggregation services.
- A systemic view on business liabilities of status quo and quantitative and qualitative modelling of opportunities of investing in resilience.
- Causal effect maps for how key and interconnected initiatives are able to work in tandem to towards an overarching vision, creating momentum overcoming risks perceived by cautious investors.
- Engagement processes that create committed actors working towards a shared visions at different leverage points in a system.

Outcomes

- Long-term, strategic investments create value across systems.
- Novel partnerships between investors, government and other institutions who shape change are common.



- Multi-scale investment logics unlock potential at the household, community and regional scale.
- A longer-term vision can create buy-in from diverse stakeholders across government, not-for-profit, research, private and community sectors.
- Greater transaction costs for more complex investments and initiatives can be offset by the broader range of benefits and beneficiaries.
- Inclusive approaches uplift local knowledge, priorities and expertise, ensuring that interventions meet the needs of those impacted.
- Inclusive, diverse and place-based approaches unlock unexpected opportunities by connecting actors, resources, actions and finance within and across systems.

Additional Resources

The integrated and systemic approach described in Stage D is currently still theoretical. Work is needed to create an enabling policy environment to generate benefits for multiple beneficiaries by designing for multiple objectives aligned to a shared vision. Additional resources on the value of a systemic approach to resilience investment include:

- [Systemic Disaster Risk Handbook](#) – principles for systemic disaster risk reduction, inclusive governance and decision-making to support resilience and sustainability (AIDR).
- [TransCap Initiative](#)– developing, testing and scaling an investment logic at the intersection of systems thinking and finance (TransCAP).
- [Enabling Resilience Investment Approach](#) – an approach to engagement, planning and analysis to incorporate value creation and systemic risk mitigation in the design and delivery of current and future investments (CSIRO).
- [What it takes to create an enabling environment for resilience investment: A town like Cobargo](#) - Describes the Cobargo Disaster Recovery and Energy Transition demonstration project using a new renewable energy facility in a disaster recovery context as an example to test energy transition concepts (CSIRO).

Conclusions and next steps

By addressing climate resilience as a complex, systemic challenge, this concept paper advocates for a systems approach that considers interdependencies and feedback loops within and between systems. This necessitates moving beyond short-term fixes to embrace long-term, sustainable solutions that tackle the root causes of climate vulnerability.

The ABCD pathway outlined in this paper demonstrates a progressive, systemic approach to resilience investment. It illustrates how organisations can develop from a narrow focus on individual assets to a comprehensive, integrated vision that aligns with broader systemic resilience and economic development goals. This framework supports decision-makers in applying systemic principles to build a robust investment case for resilience action, emphasising the value of synergies, stacked benefits, adaptive capacities, and emergent opportunities.

The ABCD stages demonstrate a conceptual framing for the sequential development of objectives, risks, opportunities, values, costs, and benefits associated with different approaches that incorporate an increasingly systemic lens into resilience investment decision-making. This deepening capability for systems thinking in the context of resilience investment can underpin novel investment cases, better articulate the broad benefits that can flow to communities, regions, economies, and the environment from investments in resilience, and identify what is needed to create an enabling policy environment to increase the flow of investment to resilience projects.

To advance the development and implementation of effective resilience investments, the following steps are recommended:

- **Enhance collaboration and knowledge** through participation in forums such as the Resilient Futures Investment Roundtable which foster ongoing collaboration between diverse stakeholders to share knowledge, experience and expertise in resilience investment.
- Implement **novel processes and flexible governance structures** that enable cross-disciplinary collaboration and effective decision-making under uncertainty.
- **Build capacity for systems thinking**, including applying the principles for systemic risk reduction to resilience planning and investment.
- **Use the ABCD framing** outlined in this concept paper to think about the transition from an asset-focussed approach to an integrated, systemic approach.
- Where possible, **explore adopting a partnership approach**, and include local communities in the planning and implementation of resilience projects to ensure their needs and perspectives are integrated into the decision-making processes.

By building capability for a systemic approach, organisations can build a strong and more compelling case for resilience investments, and increase the flow of investment in resilience-building projects to protect vulnerable Australian communities and allow them to thrive in an uncertain future.