H HEURISTICS

POLYCRISIS RESILIENCE SERIES · ASSESSMENT

Polycrisis Resilience

An assessment of the intellectual contribution of Hunter Hughes and the H Heuristics framework



Hunter Hughes
Founder, H Heuristics

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THE ASSESSMENT AT A GLANCE

THE CONCEPT ASSESSED

Polycrisis Resilience is the capacity of individuals, communities, institutions, economies, societies and interconnected systems to anticipate, withstand, adapt to, recover from and reduce their vulnerability to multiple interacting crises.

THREE LEVELS OF CONTRIBUTION

- **Intellectual** a shared framework: strong
- **Research** an open programme: moderate
- **Institutional** use by agencies: none yet

FOUR STAGES OF IMPACT

1 Conceptual establishment: reached

2 Research adoption: not yet

3 Institutional adoption: not yet

4 Real-world impact: not yet

EXECUTIVE SUMMARY

Executive Summary

Polycrisis Resilience is a clear, well-connected idea that has been published and tested in the open. Whether it becomes an important contribution now depends on outside scrutiny, institutional use and measured results.

Hunter Hughes, Founder of H Heuristics, has defined Polycrisis Resilience and built a framework around it: the capacity of people, institutions and systems to anticipate, withstand, adapt to, recover from and reduce their vulnerability to several interacting crises at once. This report asks a plain question: what has been contributed so far, how strong is the evidence for it, and what could it plausibly achieve by 2100? It applies ten stated criteria, uses public data wherever possible, and keeps what has been shown apart from what has only been hoped for.

18 works use the phrase "polycrisis resilience" in a title or abstract; 15 are H Heuristics deposits, 3 come from other authors	**0** citations to any of them so far; the oldest H Heuristics deposit is about nine weeks old	**53** research reports and 2,844 pages on the H Heuristics platform since 8 September 2026	**5×** size of a 10% reallocation of 2025 aid ($17 billion) compared with the roughly $3.5 billion that carries a disaster-risk label

Principal findings

- **The problem the concept addresses is real and growing fast.** Scholarly works mentioning "polycrisis" rose from 40 in 2022 to 1,177 in 2026 (to 6 November), and the share that also discuss resilience rose from 10% to 28% (Figure 1). Interest in the field is high; a clear, development-focused definition of resilience is still scarce.
- **The contribution is a synthesis, not a new word.** "Polycrisis" and "resilience" each belong to earlier thinkers, and three other 2026 works already use the exact phrase (Figure 3). What is distinctive is a specific definition, a six-capacity and five-stage framework, a development-economics focus on structural vulnerability, and an open research programme built on it (Section 3, Section 4).
- **On the quality of the idea, the evidence is good.** Clarity and integration across fields rate strong; novelty and internal coherence rate moderate (two ways of cutting the concept are still to be reconciled). On testing, the programme is large and unusually willing to publish null results. On recognition, every rating is still "none yet" (Figure 5).
- **The programme's own tests are the most credible part, and they show where the work is unfinished.** A unified risk score is no better at predicting realised harm than its parts; the five-capacity composite is mostly a measure of national income (R^2 0.86); and national resilience is not a stable trait (a correlation of 0.09 between two crises). These are useful results, and they say the measurement side needs more work (Section 6).

- **The economic case is plausible but not yet proven for a multi-sector package.** Published benefit-cost ratios for disaster and climate resilience cluster between 2:1 and about 15:1. The 18:1 return suggested for integrated multi-risk packages is a hypothesis that sits above that evidence and inside the range of health and development investments (Figure 6). One figure cited in the Substack article, about $7 of losses avoided per $1 (attributed to UNDP), appears in UNDP materials but its underlying study could not be located, so it is not relied on (Section 7).
- **Impact lies ahead, and it comes in stages.** The concept has reached Stage 1 (defined, published and findable). Stage 2 (research adoption), Stage 3 (institutional adoption) and Stage 4 (real-world impact) have not yet been reached. Comparable ideas took 5 to 30 years to move between stages (Section 8).
- **"Billions of people" is possible only as a scenario.** Shifting 10% of 2025 aid ($17 billion a year) over 75 years would return $5 to $20 trillion at 4:1 to 15:1, undiscounted. The framework could claim only the share of that which it caused. If it explained 1% of the reallocation, that would be about $92 billion (Section 9).
- **Overall verdict.** A promising, coherent and openly published foundation, not yet an established contribution. The largest possible contribution lies at Stage 3, and it depends on independent testing, a validated measurement tool and uptake by institutions. Section 10 sets out ten tests for 2027–2030 that would settle the question.

How to read this report

Sections 1 to 3 set out the question, the problem and the concept. **Sections 4 to 6** place the idea among existing work and assess it at three levels: intellectual, research and institutional. **Sections 7 to 9** examine the economic argument, the stages of impact through 2100 and the claim of reaching billions of people. **Section 10** gives the overall assessment and next tests. Figures and tables link to their sources. Counts of works, citations and reports are as of 6 November 2026.

CONCEPT

The definition assessed in this report

Polycrisis Resilience is the capacity of individuals, communities, institutions, economies, societies and interconnected systems to anticipate, withstand, adapt to, recover from and reduce their vulnerability to multiple interacting crises. (Hughes, 2026a)

SECTION 01

The Question and How It Is Assessed

An idea can be well made and still have no effect, or be influential and badly made. This report keeps the two apart, scores each on stated criteria and shows its working.

IN BRIEF

- Three levels of contribution: the idea itself, the research built on it, and its use by institutions.
- Ten criteria, each rated Strong, Moderate, Early or None yet, with the evidence behind each rating.
- The author of the concept is also the author of this report, so the evidence rules are strict and the weak spots are shown.

1.1 What "contribution" means

To contribute intellectually is to leave a field with something it did not have before: a clearer concept, a better tool, a tested finding. That is different from being famous, and different again from changing the world. A concept can be brilliant and unread. It can also be widely quoted and wrong. For this reason the report separates three levels, following the structure of the question itself.

- **Intellectual contribution.** A defined framework that gives researchers, practitioners and policymakers a shared language for how climate, pollution, poverty, technology gaps, economic instability and other pressures interact.
- **Research contribution.** A programme of work that turns the concept into measurements, tests and findings that others can check, connecting development economics, environmental sustainability, technology diffusion, institutional capacity and systemic risk.
- **Institutional contribution.** Use of the concept by development agencies, governments, multilateral institutions, universities and research organisations to judge investments by their combined effect on vulnerability. This is where the largest potential lies, and it depends on others.

The distinction between what has been achieved and what is possible runs through everything that follows. Publishing a recognisable framework is an achievement of the first level. Its worldwide adoption and measurable effects on populations are possibilities, not outcomes.

1.2 Who is assessing, and why that matters

H Heuristics is the research practice founded by Hunter Hughes, and this report assesses the practice's own concept. That is a conflict of interest, and the report is written with it in view. Four safeguards are used. The criteria are stated before the evidence is presented. Evidence is drawn from public records that anyone can re-run, chiefly the OpenAlex catalogue of scholarly works (OpenAlex, 2026), the open deposits on Zenodo and Figshare, and the H Heuristics platform itself (H Heuristics, 2026a). Every rating has a floor, so "None yet" is available and used. And claims that could not be verified are flagged rather than repeated.

Search engines and AI assistants now summarise the concept and name its author. The author has read several of these summaries, including two Google AI Overviews and an AI-written assessment of the contribution. They are treated here as evidence of findability only. They are not evidence of merit, because such tools reflect what has been published online, repeat it with confidence and sometimes add details the source does not contain (Section 5 gives an example).

1.3 Ten criteria

The criteria adapt a well-known framework for judging concepts in the social sciences, which asks whether a concept is clear, distinct, connected to other ideas and useful for research (Gerring, 1999). Ten questions follow from it. They fall into three groups: the idea, the evidence and the recognition. Table 1 lists them with the evidence used for each.

Table 1 The ten assessment criteria

Group	Criterion	The question	Evidence used
The idea	Clarity	Can another person apply the definition?	The published definitions
	Novelty	What does it add to existing work?	Prior-art comparison; OpenAlex search
	Integration	Does it connect fields that are usually separate?	Scope of the framework and series
	Coherence	Do the parts fit together without contradiction?	Comparison of the published versions
The evidence	Measurability	Can it be measured in a way that adds information?	Scorecards and their tests
	Empirical testing	Has it been tested against data, including failure?	H Heuristics test results
	Transparency	Can others check the work?	Public data, DOIs, stated methods
Recognition	Independent scrutiny	Have others cited, tested or criticised it?	OpenAlex citations; peer review
	Institutional uptake	Do agencies, banks or governments use it?	Search for use in policy documents
	Real-world outcomes	Is there measurable change that can be attributed to it?	Not yet testable

Source: H Heuristics, adapted from (Gerring, 1999). Ratings are the author's judgement on the evidence cited.

1.4 What the evidence can and cannot show

Three limits apply. First, citation counts lag. A paper typically takes a year or more to be cited, so zero citations after nine weeks says little about quality; it says Stage 2 has not started. Second, OpenAlex does not index everything, and the phrase may appear in books, reports and policy papers that it misses. Third, most of the evidence on the research programme comes from the programme itself. That evidence can show what was done and how carefully, but not whether others will agree.

SECTION 02

The Problem: Crises That Interact

A polycrisis is a cluster of crises whose causes and effects are tangled together. The idea is old, the evidence is recent, and the literature has grown nearly thirtyfold in four years.

IN BRIEF

- The word polycrisis dates from the 1990s and entered public debate in 2022.
- Works mentioning it rose from 40 in 2022 to 1,177 in 2026.
- Most of the literature describes the problem. Far less offers a development-focused answer.

2.1 From one crisis at a time to many at once

The word *polycrisis* was used in the early 1990s by the French thinker Edgar Morin and Anne Brigitte Kern to describe the knot of problems facing humanity (Morin and Kern, 1999). It entered public debate in 2022, when the historian Adam Tooze used it to describe the pile-up of pandemic, war, inflation and energy shocks (Tooze, 2022), and the World Economic Forum made it a theme of its 2023 risks report (World Economic Forum, 2023). Researchers have since given it a sharper meaning. A global polycrisis is a set of crises in different systems that are causally linked, so that together they damage humanity's prospects by more than the sum of their parts (Lawrence et al., 2022; Lawrence et al., 2024).

The key idea is interaction, not number. Having several problems at once is old news. What is new is the density of links between them: trade, finance, energy, information and people are more tightly connected than ever, which raises the chance that a shock in one place becomes a cascade (Centeno et al., 2015; Helbing, 2013; Renn et al., 2022). The 2026 edition of the World Economic Forum's risk survey ranks geoeconomic confrontation first for the year ahead, with environmental risks making up five of the top ten over a ten-year horizon (World Economic Forum, 2026).

HOW IT WORKS

Four ways crises interact

Amplify. A flood that strikes during a currency crisis does more harm than the same flood in a stable economy, because rebuilding must be paid for at a high price.

Transmit. A drought in one region becomes a price shock in another, then a political shock.

Compete. Governments facing several emergencies must choose among them, so spending on prevention is postponed.

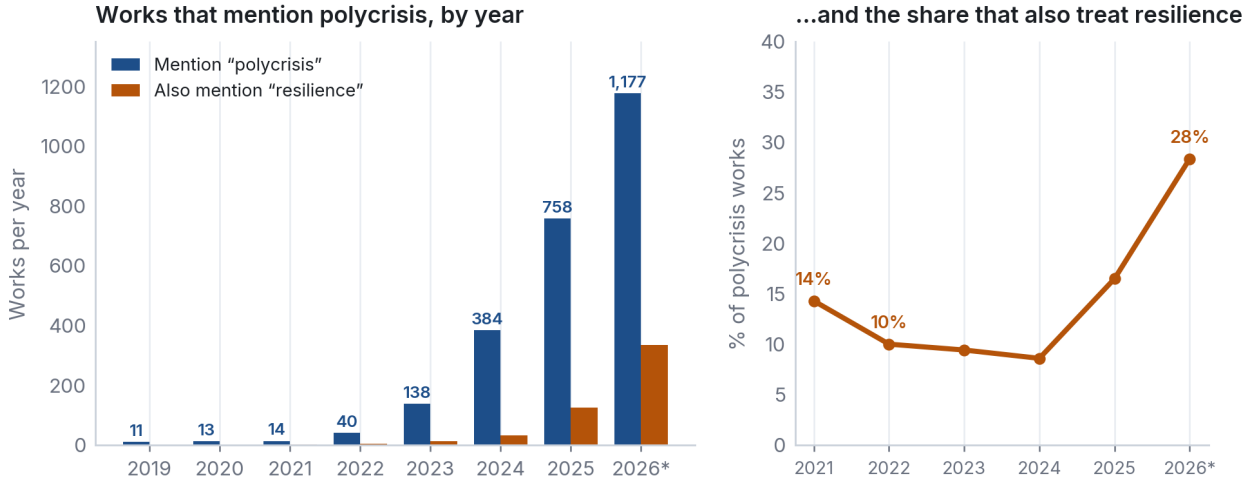
Erode. Each shock uses up savings, health and trust, leaving less cushion for the next.

2.2 A fast-growing field

The field around the word has grown very quickly. OpenAlex lists 2,559 works whose title or abstract mentions polycrisis (OpenAlex, 2026). Of these, 40 were published in 2022 and 1,177 in 2026 so far, a rise of about 19 times between 2022 and 2025 alone (Figure 1). In 2025, about half were journal articles; the rest were book chapters, preprints, conference papers, reports and other items. Over the same period the share that also mention resilience fell slightly, to a low point of about 9% in 2024, then climbed to 28% in 2026. Researchers are turning from naming the problem to asking what can be done about it.

Figure 1 Writing on polycrisis has grown nearly thirtyfold since 2022, and more of it now concerns resilience

Left: works per year mentioning polycrisis, and those that also mention resilience. Right: the second as a share of the first.



Source: OpenAlex, searches of title and abstract run 6 November 2026 (OpenAlex, 2026). *2026 is a part-year, to 6 November.

2.3 Cascades already seen

The mechanisms in the box above are not hypothetical. Four recent events show them at work, in health, climate, energy and technology. In each, the first failure was ordinary, and what turned it into a crisis was the state of the systems around it.

CASCADES

Four recent cascades

COVID-19 (2020–21). A health crisis caused about 15 million excess deaths worldwide (Msemburi et al., 2023), then spilled into supply chains, food and energy prices and public debt.

Pakistan floods (2022). Record monsoon rains struck an economy already short of foreign currency; damage and losses above $30 billion had to be financed at a high price (Government of Pakistan et al., 2022).

Texas freeze (2021). A cold snap disabled gas supply and power generation together, and each failure deepened the other (FERC and NERC, 2021).

Software outage (2024). One faulty update disrupted about 8.5 million computers, and with them airlines, hospitals and banks (Weston, 2024).

2.4 The gap the concept aims at

Two gaps stand out in the writing and in practice. The first is conceptual. Most polycrisis work diagnoses: it explains how crises link up. Resilience work, by contrast, has mostly been done one hazard at a time, with floods, droughts, pandemics and financial shocks each in a separate institution. Few definitions ask how a society can reduce its exposure to *several* interacting crises, and fewer still tie that to development choices such as power, water, schooling and institutions.

The second gap is financial. The UN disaster agency reports that only about 2% of official development assistance supports disaster risk reduction (UNDRR, 2025). H Heuristics' earlier calculation from OECD data found 8 cents of prevention aid for every dollar of response aid to developing countries in 2015–2024 (Hughes, 2026m). And the pool is shrinking: preliminary OECD figures show aid from rich countries fell by 19% in nominal terms, or 23.1% in real terms, between 2024 and 2025, to $174.3 billion (OECD, 2026). A framework that argues for moving money from reaction to prevention is entering a debate where the money is both misallocated and scarce.

2.5 Why a unifying framework could matter

A shared definition does three practical things. It gives different professions a common vocabulary, so that an energy economist and a public health specialist can talk about the same vulnerability. It lets decision makers compare options across silos, for instance asking whether a clinic, a mini-grid or a flood wall reduces the combined risk the most. And it makes it possible to build common indicators. None of these benefits comes automatically from a definition. They arise only if the definition is clear enough to use and used often enough to become standard, the two tests applied in the rest of this report.

A framework also has limits that are worth stating at the outset. It cannot say which crisis will come next, and it does not replace sector expertise: a flood engineer still knows more about floods than a general framework does. What it can do is ask better questions of each sector, such as how a proposed project changes the vulnerability of the people and systems around it, and give the answers a common form. That is a modest claim, and it is the one against which this report tests the concept.

SECTION 03

The Concept: What Polycrisis Resilience Says

The H Heuristics framework defines resilience as more than recovery. It is a development agenda for reducing the vulnerability that lets shocks cascade.

IN BRIEF

- One definition, six capacities and a five-stage cycle.
- The central move is from bouncing back to bouncing forward: fixing structural weaknesses, not restoring them.
- Two ways of cutting the concept appear in the series and should be reconciled.

3.1 The definition

Polycrisis Resilience

Polycrisis Resilience is the capacity of individuals, communities, institutions, economies, societies and interconnected systems to anticipate, withstand, adapt to, recover from and reduce their vulnerability to multiple interacting crises.

Hughes, H Heuristics flagship definition (Hughes, 2026a)

The definition has five verbs. To *anticipate* is to see trouble coming. To *withstand* is to keep going when it arrives. To *adapt* is to adjust to a changed situation. To *recover* is to restore what was lost. To *reduce vulnerability* is to change the conditions that made the damage possible. The last is the most unusual. Many definitions of resilience stop at recovery. This one treats the reduction of vulnerability as part of resilience itself, which turns it from a defensive idea into a development one.

A second wording of the same concept appears in the series. It describes Polycrisis Resilience as the systematic development of human, institutional, technological, economic and environmental capacities to prevent, absorb, adapt to and recover from interconnected global crises, while reducing their cascading effects and long-term consequences (Hughes, 2026n). The two wordings agree in substance; one stresses what the capacity is, the other what is being built.

3.2 Six capacities

The framework describes six capacities that together make up resilience (Table 2). They are named for what they do. Risk reduction and prevention act before a crisis, absorption during it, recovery after it, and adaptation and transformation across successive crises. The list is a useful checklist because it reminds planners that a system strong at recovery may still be weak at prevention.

Table 2 The six capacities of Polycrisis Resilience

Capacity	What it does	Everyday example
Risk reduction	Lowers the drivers of vulnerability	Clean cooking that cuts household air pollution
Preventive	Makes crises rarer and milder	Early warning systems; disease surveillance
Absorptive	Keeps essential functions running under stress	Backup power for clinics; food stocks
Recovery	Restores functions and welfare afterwards	Cash transfers and rapid reconstruction
Adaptive	Learns and adjusts between crises	Updating building codes after a flood
Transformative	Changes pathways that keep people vulnerable	Moving from fuel imports to local clean power

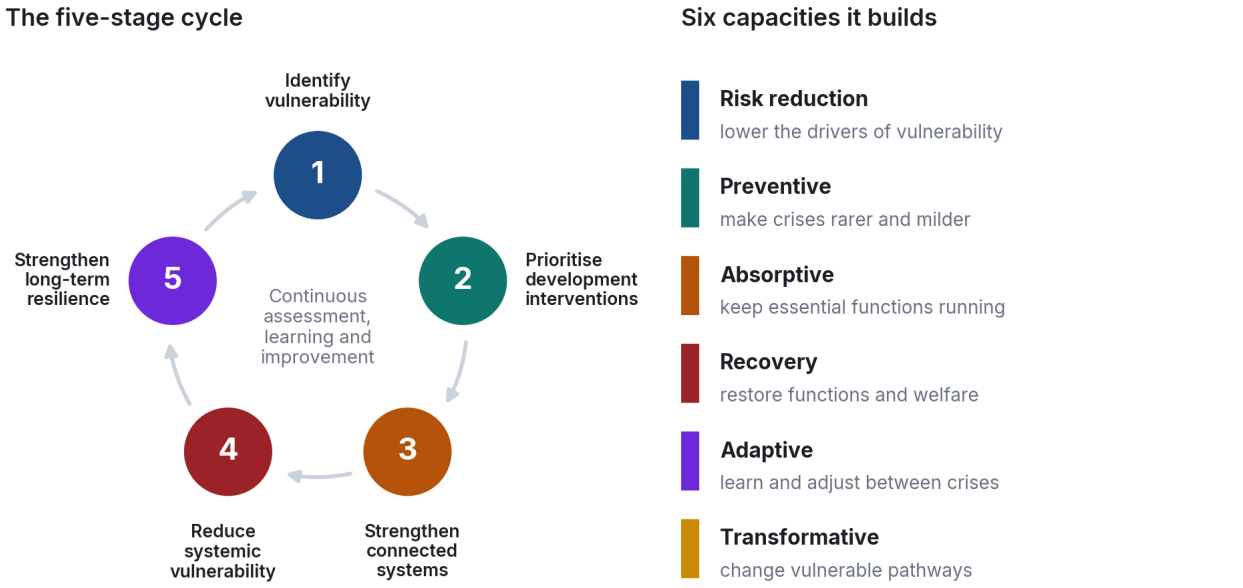
Source: H Heuristics framework (Hughes, 2026a); examples are illustrative and the author's own.

3.3 The five-stage cycle

The framework turns the capacities into a repeating process (Figure 2). Stage 1 identifies where a place or population is vulnerable. Stage 2 ranks development interventions that could reduce that vulnerability. Stage 3 strengthens the connected systems, such as energy, water, health, transport and finance, rather than treating each alone. Stage 4 checks whether systemic vulnerability has actually fallen. Stage 5 locks in long-term resilience by building institutions and habits that last. At the centre of the cycle is continuous assessment, learning and improvement, so the answers to Stage 1 are revisited as conditions change.

Figure 2 The framework is a five-stage cycle that builds six capacities

Left: the five stages, arranged in a loop around continuous assessment, learning and improvement. Right: the six capacities.



Source: H Heuristics, Polycrisis Resilience framework (Hughes, 2026a); drawing by H Heuristics.

3.4 Bouncing forward

The central claim is that resilience should mean more than "bouncing back". After a disaster the usual aim is to restore what was there. If the old arrangement was fragile, restoring it restores the fragility. The framework instead aims at "bouncing forward": using a disruption as the occasion to fix structural weaknesses and raise long-term adaptive capacity. The phrase has an academic lineage in disaster studies, where scholars have asked whether resilience should be a bounce-back or a bounce-forward ability (Manyena et al., 2011), and in the wider resilience literature (Folke, 2006; Linkov et al., 2014). The Sendai Framework's call to "build back better" expresses a similar aim (UNDRR, 2015).

What the H Heuristics framework adds is a list of where the forward bounce should come from. It links six development priorities: economic convergence and poverty reduction; clean energy and environmental improvement; climate adaptation and resilient infrastructure; technology and innovation diffusion; human development, health and institutional capacity; and the prevention of cascading vulnerabilities. This is a development argument, in the tradition of treating freedom from deprivation as the basis of security (Sen, 1999). It also means the framework can be judged by development evidence, which is what the research programme in Section 6 tries to do.

3.5 Two ways of cutting the concept

The series uses two cuts of the idea, and a reader meeting both may wonder how they fit. The six capacities in Table 2 are cut by *function*: what the capacity does. A second cut, used in the measurement work, divides resilience by *resource*: five capacities, human, institutional, technological, economic and environmental, each of which can perform four functions (prevent, absorb, adapt and recover) (Hughes, 2026n). The two are compatible, like a calendar read by rows or columns. Table 3 shows one way to join them.

Table 3 A crosswalk between the two cuts

Function cut (six capacities)	Resource cut (five capacities × four functions)
Risk reduction; Preventive	The *prevent* function of each of the five resources
Absorptive	The *absorb* function of each resource (for example fiscal buffers, backup systems)
Recovery	The *recover* function of each resource
Adaptive; Transformative	The *adapt* function, extended to changing the pathway itself

Source: H Heuristics, proposed reconciliation (author's synthesis of (Hughes, 2026a; Hughes, 2026n)).

The crosswalk is a proposal, not a published standard. It shows the two cuts are not rivals, but a reader has to do the joining. For a concept that hopes to be widely used, publishing a single official version would remove a point of confusion, and Section 10 lists this among the near-term tasks.

SECTION 04

Where It Sits Among Existing Ideas

No idea starts from nothing. The framework draws on five bodies of earlier work, and the phrase itself has been used by a few others in 2026. What matters is what it adds.

IN BRIEF

- Five bodies of work are borrowed from: resilience, polycrisis, disaster risk reduction, sustainable development and planetary boundaries.
- No work before 2026 uses the exact phrase in a title or abstract; 3 others do in 2026, before H Heuristics' first deposit on 6 September.
- The addition is a particular definition, a development-economics focus and an open research programme.

4.1 Five bodies of work it draws on

The framework stands on well-established ground, and a fair assessment starts by saying so. **Resilience** as a scientific idea goes back to the ecologist C. S. Holling, who described it as a system's ability to absorb change and persist (Holling, 1973); it was later extended to people and societies (Folke, 2006) and argued over as a concept in its own right (Linkov et al., 2014). **Disaster risk reduction** gave resilience a policy home: the UN defines it as the ability to resist, absorb, accommodate, adapt to, transform and recover from hazards while preserving essential functions (UNDRR, 2017), and the Sendai Framework made reducing risk a global goal (UNDRR, 2015). **Polycrisis and systemic risk** supply the idea that crises are linked (Lawrence et al., 2022; Centeno et al., 2015). **Sustainable and human development** supply the goals: meeting needs without undermining the future (WCED, 1987), and expanding what people can do and be (Sen, 1999). **Planetary boundaries** supply the picture of limits that, once crossed, trigger large shifts in the Earth system (Rockström et al., 2009).

4.2 Is the term itself new?

The phrase "polycrisis resilience" is a joining of two common words, so it would be surprising if nobody had written it. A search of OpenAlex (OpenAlex, 2026) for the exact phrase in titles and abstracts returns 18 works, all dated 2026, and none from earlier years (Figure 3). Three of them are by other authors and predate H Heuristics' first deposit on 6 September 2026: a paper titled *Polycrisis Resilience* by Marcella Lucchetta of Ca' Foscari University of Venice, posted on SSRN (Lucchetta, 2026); an Indonesian-language article on ESG and sustainability performance measurement whose abstract uses the phrase; and a *Journal of Economic Geography* article on how firms respond to the polycrisis, which treats resilience strategies among Danish manufacturers (Pedersen et al., 2026). This report has not read the full text of these papers and cannot say how each defines the term.

Two conclusions follow. First, the words are not uniquely H Heuristics' own, and a claim of having "coined" the phrase would be hard to defend, since OpenAlex does not capture every book, report or language and an earlier use may exist. Second, a wider concept is the relevant test. The

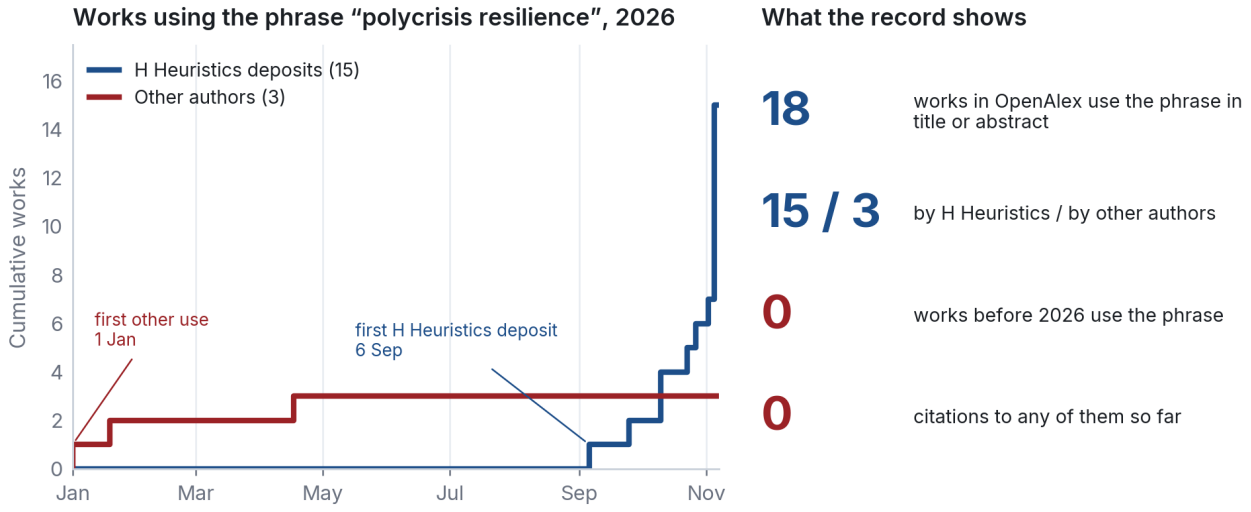
Table 4 How Polycrisis Resilience relates to earlier ideas

Earlier idea	Core point	What the framework takes	What it changes or adds
Ecological resilience (Holling, 1973)	Systems absorb change and persist	The idea of capacity under stress	Applies it to development outcomes for people, not only to ecosystems
Disaster resilience (UNDRR, 2017)	Resist, absorb, adapt and recover from hazards	The functions in the definition	Adds *reducing vulnerability* as part of resilience, and several crises at once
Polycrisis (Lawrence et al., 2022)	Crises in different systems are entangled	The problem statement	Moves from diagnosis to a development agenda for response
Systemic risk (Centeno et al., 2015)	Failures cascade through networks	The cascade logic	Targets the *structural conditions* that let cascades spread
Sustainable development (WCED, 1987; United Nations, 2015)	Meet today's needs and protect the future	The long horizon; the goals	Judges investments by their combined effect on vulnerability
Planetary boundaries (Rockström et al., 2009)	Earth-system limits not to be crossed	The sense of limits and tipping	Focuses on human exposure and capacity rather than on the limits themselves
Climate adaptation economics (Global Commission on Adaptation, 2019)	Adaptation pays; benefit-cost 2:1 to 10:1	The economic case for prevention	Extends it to multi-risk packages that include non-climate shocks

Source: H Heuristics comparison; entries summarise the cited works and are the author's reading of them.

Figure 3 Fifteen of the eighteen works that use the phrase are H Heuristics deposits, and none has yet been cited

Left: cumulative works using the phrase "polycrisis resilience" in 2026, by author group. Right: summary counts.



Source: OpenAlex, exact-phrase search of title and abstract, run 6 November 2026 (OpenAlex, 2026); H Heuristics calculations.

three other works use the phrase in a descriptive or firm-level sense. None sets out a general definition, a capacity framework and a cross-country measurement programme as H Heuristics has done. The contribution is therefore better described as developing and defining the concept than as inventing the phrase.

4.3 What is genuinely new

Three features are the best candidates for novelty, and each is partly anticipated by earlier work. The first is **definitional**: counting the reduction of vulnerability as part of resilience, and applying it to several interacting crises rather than one hazard. Adaptation economics and development research have long argued that poverty drives vulnerability (Global Commission on Adaptation, 2019; Sen, 1999), but making that insight the definition of resilience is a distinct step. The second is **economic**: reading ordinary development spending, such as power, clean cooking, water, schooling and institutions, as risk reduction. The third is **programmatic**: an open series of country-level studies built on public data. A fair rating is Moderate: a creative synthesis with a distinctive emphasis, not a break with prior thought.

4.4 What AI summaries add, and what they get wrong

Part of the case for Stage 1 is that search tools now associate the concept with its author. Two Google AI Overviews and one AI-written assessment, read while preparing this report, attribute the framework to Hunter Hughes and H Heuristics and describe its core ideas correctly: the capacity to anticipate, withstand, adapt to and recover from interacting crises, and the shift from bouncing back to bouncing forward. That is real evidence that the work is findable. It is not evidence that the work is right. Table 5 checks some of the details the summaries add against the published record.

Table 5 Checking what AI summaries say about the framework

Statement in an AI summary	What the published record shows
The concept was developed by Hunter Hughes through H Heuristics	Supported: the definition and framework are published under that name (Hughes, 2026a; Hughes, 2026g)
It defines how systems "anticipate, withstand, adapt to" and recover from interacting crises	Supported: this is the published definition
It moves from "bouncing back" to "bouncing forward"	Supported as a framing; the idea also has an earlier academic lineage (Manyena et al., 2011)
Polycrisis was coined by Morin and Kern and popularised by Tooze and the Cascade Institute	Supported by the literature (Morin and Kern, 1999; Tooze, 2022; Lawrence et al., 2022)
Formal models such as a "Polycrisis Resilience Index (PRI)" evaluate exposure, coupling, adaptive capacity and equity	Not supported as stated: the series proposes a future index, and has published a Polycrisis Risk Reduction Index and a five-capacity scorecard (Hughes, 2026o; Hughes, 2026n). No published index of that name with those four dimensions was found
It introduces a "Compounding Factor"	Not found in the reports reviewed for this assessment; treat as unverified
Operational resilience relies on pre-crisis buffers, diversity and modularity	General resilience-engineering ideas; not specific to this framework

Source: AI summaries read by the author while preparing this report; comparison by H Heuristics against the published series.

The pattern is instructive. AI tools blend what a source says with nearby ideas from elsewhere and present the mixture with confidence. If the blended description spreads, people may credit the framework with things it has not claimed. The remedy is one short, citable definition page and consistent names for every tool, one of the ten tests in Section 10.

SECTION 05

The Contribution at Three Levels

Judged on the quality of the idea, the contribution is real. Judged on outside recognition, it has not started. Both statements are true, and both are expected at nine weeks.

IN BRIEF

- Level 1, the idea: clear and well connected, with some overlap to resolve.
- Level 2, the research: 53 reports and 15 deposits, with candid results; not yet independently tested.
- Level 3, institutions: none observed, and it is where the biggest potential lies.

5.1 Level 1: the intellectual contribution

The first level asks whether the framework gives people a shared way of thinking about how pressures such as climate change, pollution, poverty, technology gaps and economic instability interact. On that test the evidence is good. The definition is a single sentence and can be applied: a reader can ask of any programme whether it helps a community anticipate, withstand, adapt to, recover from or reduce its vulnerability to several crises. The framework connects fields that are usually kept apart. Climate adaptation, clean energy, public health, schooling, technology and institutions appear in one system, rather than in separate reports for separate agencies. This is what the introduction to the concept means by bringing separate development priorities into a common frame.

Two cautions keep the rating from being the highest. Novelty is moderate, because each ingredient has a long history (Section 4). And coherence is moderate, because the series uses two cuts of the concept and two wordings of its definition; a newcomer has to reconcile them. Neither is a flaw in the idea. Both are the kind of loose ends a young framework has, and both can be fixed by publishing one canonical version.

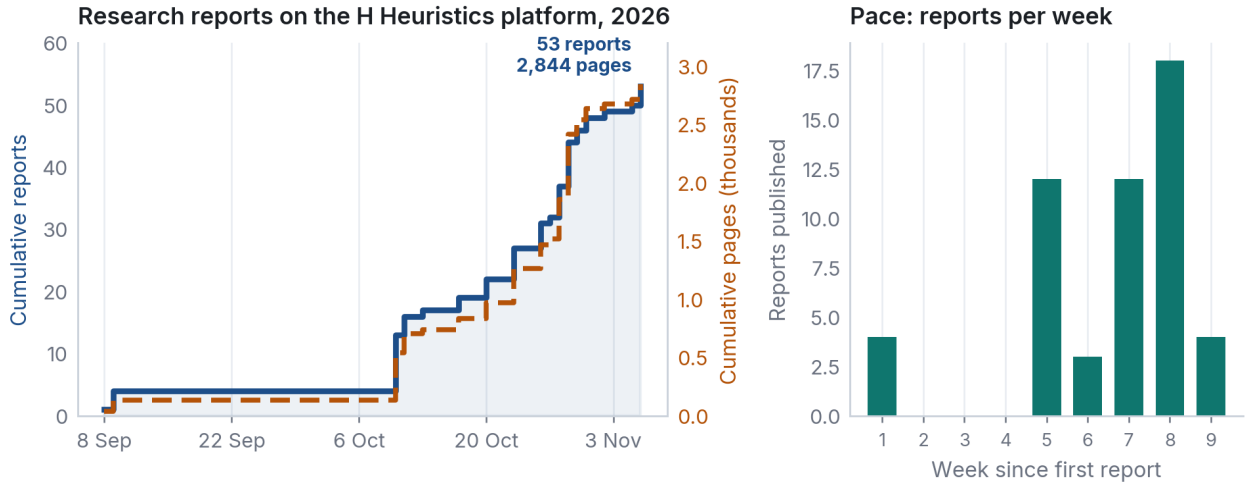
5.2 Level 2: the research contribution

The second level asks whether the concept has been turned into work others can check. H Heuristics has put out 53 PDF research reports with 2,844 pages between 8 September and 6 November 2026, an average of about 54 pages each, listed on the research platform (H Heuristics, 2026a) (Figure 4). 15 deposits carrying the phrase have been registered on Zenodo and Figshare with permanent DOIs, one example of each being (Hughes, 2026f; Hughes, 2026g). A web-native series of 87 interactive digital reports sits beside them. The reports draw on public data from the World Bank, the WHO, the UN, the OECD and EM-DAT, and say which indicators were used.

Three qualities stand out. The work is **open**, because the data are public and the deposits carry DOIs. It is **wide**, covering Africa (Hughes, 2026b), the Global South (Hughes, 2026d), a 166-country capacity scorecard (Hughes, 2026c), cooling, clean energy, food and water, health, finance and prevention. And it is **candid**: several reports publish results that cut against the framework's own tools, which Section 6 reviews. Three qualities are missing. The work has not been **peer re-**

Figure 4 The H Heuristics series reached 53 reports and nearly 3,000 pages in about two months

Left: cumulative reports (blue) and pages (orange, dashed). Right: reports published per week since the first report.



Source: H Heuristics research platform, publication dates and page counts of the 53 listed reports (H Heuristics, 2026a); H Heuristics calculations.

viewed, it has not been **independently replicated**, and the code behind the scorecards has not been released as a package. These are normal gaps for a first-year programme, and they are exactly what the Stage 2 tests in Section 10 target.

5.3 Level 3: the institutional contribution

The third level is the one the concept is ultimately for. If the framework gained recognition, it could provide a common analytical base for development agencies, governments, multilateral institutions, universities and research organisations to evaluate investments by their combined effect on vulnerability. That would be the largest contribution the concept could make, and it is the one it does not control. This report searched for signs of such use, including citations in OpenAlex and mentions in policy documents of agencies and banks, and found none. That is the expected result for a concept published weeks ago, and it means the rating here is “None yet”, not “No”.

The routes to institutional use are fairly clear. Risk assessment teams could adopt the definition or scorecard as one input among several. Universities could teach it in development and risk courses. Development banks and ministries could use the five-stage cycle to screen projects, asking which options lower vulnerability across several systems. Each route runs through trust, and trust is built by independent scrutiny first, which is why the order of the stages matters.

5.4 The scorecard

Figure 5 brings the ten ratings together. The profile has a clear shape: strong on the idea, moderate on the evidence and empty on recognition. This is the profile one would expect of a concept that is nine weeks old, clearly stated and openly published. The right reading is not that the concept has failed to be recognised. It is that recognition is the open question, and that the evidence base for the first two groups is good enough to justify asking others to test it.

- **To raise the first group:** publish one canonical definition and one taxonomy, and state clearly what the framework rules out as well as what it includes.
- **To raise the second:** release code, show that a measure beats an income-only baseline on data it was not built from, and subject the key papers to peer review.
- **To raise the third:** nothing can be done by assertion. Independent citation, use and evaluation have to be earned, which is why the order of the stages matters.

Figure 5 The ten-criteria profile: strong on the idea, moderate on the evidence, none yet on recognition

Rating of each criterion on a four-step scale, with the main reason for the rating

THE IDEA		
Clarity of definition	Strong	A formal one-sentence definition
Novelty	Moderate	Mostly a new synthesis of known ideas
Integration across fields	Strong	Links climate, health, energy, finance
Internal coherence	Moderate	Two taxonomies still to be reconciled
THE EVIDENCE		
Measurability	Early	Scorecards exist; mostly track income
Empirical testing	Moderate	Many public-data tests, incl. null results
Transparency	Moderate	Public data and DOIs; code not yet released
RECOGNITION		
Independent scrutiny	None yet	No citations or peer review yet
Institutional uptake	None yet	None found
Real-world outcomes	None yet	None attributable

Source: H Heuristics assessment, ratings by the author on the evidence in Sections 4 to 6. Strong = 3, Moderate = 2, Early = 1, None yet = 0.

SECTION 06

The Research Programme: What Has Been Tested

A framework earns trust by the tests it risks failing. The series has run several, and some of the results count against its own measurement tools.

IN BRIEF

- Nine findings from the series are reviewed, with a plain reading of what each means for the concept.
- Five support the framework's logic; three complicate it; one is mixed.
- The pattern: the idea is on firm ground, and the measurement tools still need work.

6.1 What the series tested

The H Heuristics series asks three kinds of question. The first is **descriptive**: where are vulnerabilities concentrated, and how fast have they changed? The second is **structural**: do crises and vulnerabilities travel together, and what links them? The third is **economic**: what do shortfalls cost, and what does prevention return? Most of the tests are cross-country comparisons built on World Bank, WHO, UN, OECD and EM-DAT data, with samples of roughly 120 to 170 countries. Cross-country tests show association, not cause. The reports say so, and so does this one.

6.2 Nine findings, and how to read them

Table 6 lists nine of the most relevant results. The final column is the reading for the concept: does the finding support the framework's logic, complicate it, or both?

6.3 What the pattern means

Read together, the results do three things. They **strongly support the premise**. If vulnerability is mostly a development matter and the development systems move together, then it makes sense to treat development choices as risk reduction, and to think across systems. This is the foundation of the framework, and it is built on the firmest data in the series.

They **cast doubt on a single score**. A tempting use of the framework would be to produce one resilience number for every country. The series' own tests argue against that: the composite is mostly income, it does not predict later resilience much better, and the rankings change with the weights. The better practice, which the series itself recommends, is to publish profiles with levels, name the shock, the function and the horizon, and test across more than one crisis (Hughes, 2026i; Hughes, 2026h). A reader should take from this that the "Polycrisis Resilience Index" mentioned by AI summaries is at best a planned tool.

And they **show the programme's honesty**. Publishing results that undercut one's own measures is uncommon, and it is the main reason the Transparency and Empirical testing ratings are Mod-

Table 6 An evidence ledger: nine tests from the H Heuristics series

What was found	Report	Reading
Hazard exposure is almost unrelated to national income (correlation 0.04), while vulnerabilities such as child mortality and sanitation are tightly tied to it; the link between vulnerabilities falls from 0.51 to 0.24 when income is held fixed	21st century (Hughes, 2026o)	Supports: vulnerability is mostly a development matter
Nine of 42 cross-system spillovers are statistically significant (two expected by chance); water and sanitation progress predicts later schooling and power progress (0.46); imbalance across systems lowers survival (−0.33 SD)	Coordinated development (Hughes, 2026k)	Supports: systems move together (association only)
Volatility as such costs about 0.04 points of growth a year, but shortfalls cost 0.9 points a year and are largely permanent	Economics of resilience (Hughes, 2026j)	Supports: avoiding shortfalls matters more than smoothing
Official donors spent $263 billion on response and $21 billion on prevention in 2015–2024: 8 cents per response dollar; the median benefit-cost ratio across 17 prevention investments is 16 in low- and middle-income settings	Prevention versus cost (Hughes, 2026m)	Supports: prevention is under-funded and often pays
Thirteen of the 17 prevention investments deliver at least 40% of their benefits outside their lead domain	Prevention versus cost (Hughes, 2026m)	Supports: multi-risk logic
The five-capacity composite rises as one component (81% of variance); income explains 86% of it; it correlates −0.04 with resilience in the 2020 episode	The concept (Hughes, 2026n)	Complicates: the composite mostly measures income
A unified score of four exposure domains does no better at predicting 2020–23 harm (rank correlation 0.09) than the environmental domain alone (0.31); only 3 of 146 countries are in the worst twenty in 90% of random weightings	Unified framework (Hughes, 2026h)	Complicates: one number loses information
Composite resilience between the 2009 crisis and the 2020 pandemic correlates only 0.09; just 4 of 153 countries are in the top third in both (4.5 expected by chance)	Defining resilience (Hughes, 2026i)	Complicates: resilience is not a stable national trait
Early warning at $0.50 a person a year pays back at 51 to 1 in high-income and 0.5 to 1 in low-income countries on recorded damage; a 4:1 investment recovers its cost in 51%, 69% and 90% of five-, ten- and twenty-year windows	Prevention returns (Hughes, 2026l)	Mixed: returns are real but lumpy, and depend on lives, not only assets

Source: H Heuristics reports as cited; figures are those reported in each study, using public data.

erate rather than Early. The same honesty sets the next task: a measurement tool that adds information beyond income and has been tested on data it was not built from.

6.4 A note on speed and depth

The series reached 53 reports in 60 days, with 18 published in a single week (Figure 4). Speed has benefits. It builds a visible body of work, and it tests the framework on many topics quickly. It also has costs. Readers and reviewers tend to trust a few deep, carefully checked papers more than a large number of fast ones, and results produced at speed are more likely to contain slips. The practical suggestion, taken up in Section 10, is to select a small number of canonical papers, perhaps three or four, and bring them to journal standard.

SECTION 07

The Economic Argument: What Prevention Returns

The case that resilience pays is the strongest practical part of the framework. The evidence supports it for disaster and climate resilience, and is still a hypothesis for the multi-risk packages it recommends.

IN BRIEF

- Published returns for resilience cluster between 2:1 and about 15:1.
- An 18:1 return for multi-sector packages is plausible but has not been measured.
- Returns are uneven over time, which matters for politics as much as for economics.

7.1 The returns the argument rests on

The economic argument is that resilience is an investment and not only a cost: a dollar spent to prevent harm returns more than a dollar in avoided loss. Several large studies support the general claim. The Global Commission on Adaptation reported benefit-cost ratios of 2:1 to 10:1 across adaptation investments (Global Commission on Adaptation, 2019). The World Bank estimated that more resilient infrastructure in low- and middle-income countries returns about $4 in benefit per $1 invested, with a net benefit of $4.2 trillion in its median scenario (Hallegatte et al., 2019). The UN disaster agency's 2025 assessment reports an average of $15 in avoided future recovery costs per $1 of risk reduction, and in its policy summary a range of 2:1 to 10:1 or more (UNDRR, 2025). The two UN figures measure different things, so they should not be treated as the same number.

Figure 6 puts these beside the wider evidence compiled in an earlier H Heuristics report on prevention (Hughes, 2026m). Returns for disaster and climate resilience cluster between roughly 2:1 and 15:1. Returns for health, nutrition and some environmental programmes are higher, up to 87:1 for maternal and newborn health. The figure is a reminder that "benefit-cost ratio" depends on what is counted and by whom, and that ratios from different fields are not interchangeable.

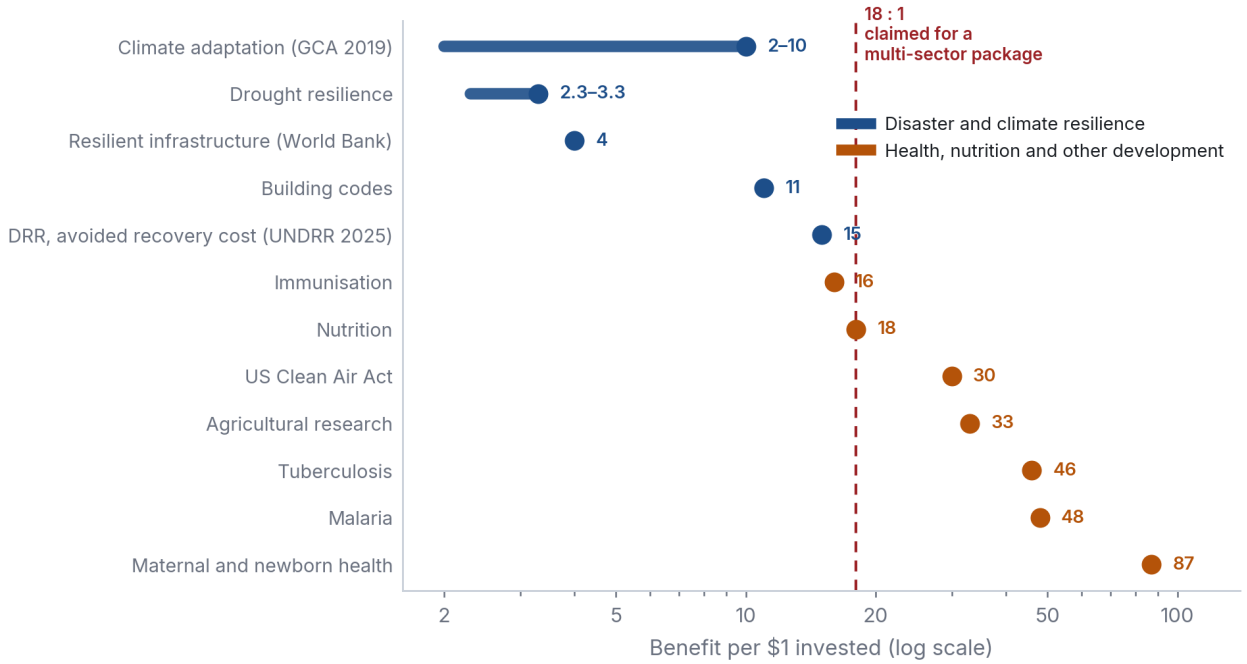
7.2 The 18:1 claim

The Substack article that prompted this assessment argues that integrated, multi-risk packages could return more than 18 to 1, because clean power, resilient farming, water security, disease prevention and technology reinforce one another (Hughes, 2026e). The logic is sound. The earlier H Heuristics review found that 13 of 17 prevention investments deliver at least 40% of their benefits outside their lead domain, so appraising each in a silo understates its value (Hughes, 2026m). A package that captures those spillovers should, in principle, return more than the sum of its separately appraised parts.

The number itself is a different matter. It is not an estimate from a measured package, and it sits above every disaster and climate ratio in Figure 6 while falling within the range for health and

Figure 6 Resilience returns cluster at 2:1 to 15:1; the 18:1 claimed for multi-sector packages lies above them

Published benefit per $1 invested, log scale. Blue: disaster and climate resilience. Orange: health, nutrition and other development.



Source: Global Commission on Adaptation (Global Commission on Adaptation, 2019); World Bank (Hallegatte et al., 2019); UNDRR (UNDRR, 2025); other ratios as compiled in (Hughes, 2026m). Central estimates; ranges shown where published.

nutrition. A portfolio simulation in the same earlier report gives a more cautious guide: a median of about 13:1 when 70% of the planned capacity is delivered with two years' delay, and about 3:1 when capacity is 40%, delay ten years and benefits are counted in silos (Hughes, 2026m). A fair reading is that 18:1 is a plausible upper-middle value for a well-run package that includes health. It is a hypothesis to test, not a result to quote.

7.3 Returns arrive unevenly

Even a good investment pays back unevenly. In the H Heuristics analysis of disaster records for 170 countries, 72% of country-years show no recorded damage, and the worst 1% hold 58% of damage and 76% of deaths. An investment with an expected ratio of 4 to 1 recovers its cost in avoided damage in only 51% of five-year windows, 69% of ten-year windows and 90% of twenty-year windows (Hughes, 2026l). A government can invest wisely and see no return for a decade. This is a political problem as well as an economic one: prevention that works leaves no visible event to show for it, and an unlucky decade can discredit it. A framework that hopes to change budgets must plan for this.

7.4 Checking the numbers in the Substack article

The Substack article is a persuasive piece, and its numbers should be separated into those that are supported, those that are scenarios and one whose basis could not be located (Table 7).

Two practical lessons follow. Every figure that the framework uses in public should carry its primary source and its basis, since the same number can mean different things under different defi-

Table 7 Claims in the Substack article and their status

Claim	Status	Note
About 2% of development aid went to disaster prevention, 2019–2023	Supported	UNDRR reports about 2%; it is variously stated as $2 per $100 of aid or 2% of projects, which are different measures (UNDRR, 2025)
Each $1 of disaster risk reduction yields about $15 of avoided recovery costs	Supported	UNDRR's 2025 assessment; a different basis from the 2:1 to 10:1 range (UNDRR, 2025)
Resilient infrastructure returns about $4 per $1	Supported	World Bank *Lifelines*, median scenario (Hallegatte et al., 2019)
Each $1 saves about $7 (attributed to UNDP)	Unverified	UNDP materials state about $7 of economic losses avoided per $1 (UNDP, 2026); the underlying study was not located in this review, so the figure is not relied on
Multi-sector packages could return more than 18:1	Hypothesis	Plausible, not measured (Section 7)
A 10% reallocation could protect over two billion people	Scenario	An assumption, tested in Section 9
Tens of trillions of dollars preserved through 2100	Scenario	Reachable only at high returns or a larger funding base (Section 9)

Source: H Heuristics review of (Hughes, 2026e) against the cited sources.

nitions. And a figure that cannot be traced should be dropped until it can be. Fixing these takes little effort, and it protects the credibility of the larger argument, which does not need the weaker numbers.

The economic case, in short, is better than the weakest numbers attached to it. A fair summary is that prevention often pays, that it pays most reliably over long horizons and across several sectors, that the exact multiple for integrated packages is unknown, and that the best next step is to measure it on real projects. That is a stronger position than a single large ratio, because it can survive scrutiny.

SECTION 08

The Potential Impact Through 2100: Four Stages

Ideas become influential in steps. The framework has completed the first. History suggests the next steps take years to decades, and most of them depend on others.

IN BRIEF

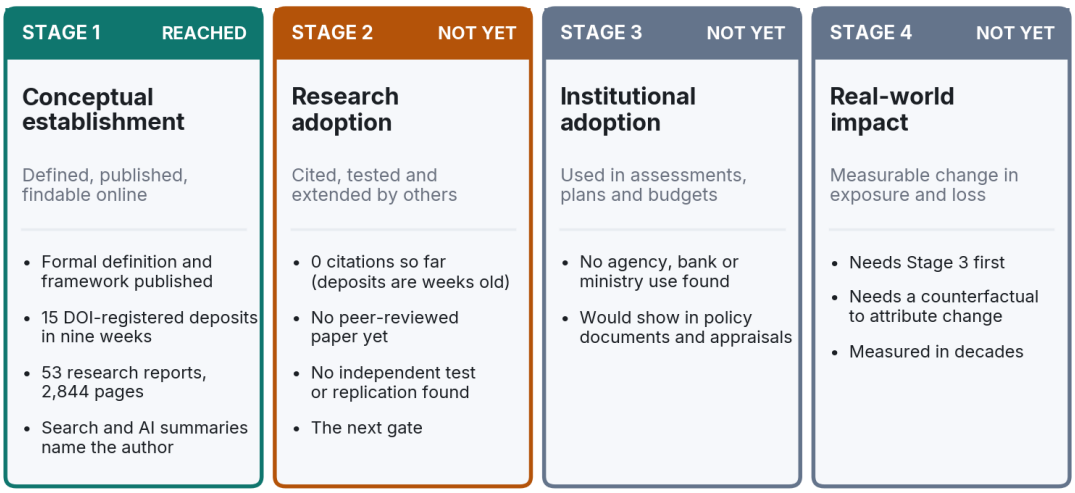
- Four stages: conceptual establishment, research adoption, institutional adoption, real-world impact.
- Stage 1 is reached; Stages 2 to 4 are not yet.
- Comparable ideas took from 5 to about 30 years to move from statement to institutional use.

8.1 The four stages

Impact can be tracked through four progressively more consequential stages (Figure 7). In **Stage 1**, conceptual establishment, the concept is defined, published and accessible online, so that researchers, AI systems, policymakers and practitioners can discover it. In **Stage 2**, research adoption, it gains citations, academic discussion, independent research and recognition in the literature. In **Stage 3**, institutional adoption, development agencies, governments, research institutes and international organisations begin using it in assessments, investment strategies and programmes. In **Stage 4**, real-world impact, it informs actual investment and policy decisions that contribute to lower environmental exposure, better infrastructure, reduced poverty-related vulnerability and stronger resilience among vulnerable populations. The stages are not guaranteed, and recognition alone does not establish real-world impact.

Figure 7 Stage 1 has been reached; research, institutional and real-world impact have not

The four stages of impact and the evidence for each as of 6 November 2026



Source: H Heuristics assessment; counts from OpenAlex (OpenAlex, 2026) and the H Heuristics platform (H Heuristics, 2026a), 6 November 2026.

Stage 1 can be called reached because its conditions are observable: a published definition, DOI-registered deposits, a research series, and search tools that connect the concept with its author. The later stages cannot be declared by the author. They are things other people do, and the only fair way to track them is to count independent actions.

8.2 How long such steps have taken

Four comparable ideas show how long the move from statement to institutional use can take (Table 8). The "sustainable development" of the Brundtland Commission was in a UN summit declaration five years later, and became the basis of the global goals 28 years after its first statement. "Resilience" took 32 years to move from an ecologist's 1973 paper to the title of the UN's disaster framework. "Polycrisis" spent about 30 years as a niche idea before the World Economic Forum used it in 2023, though it moved in under a year once a historian reintroduced it in 2022. "Doughnut economics" took eight years from a 2012 discussion paper to a city government's adoption.

Table 8 How long comparable ideas took to move from statement to institutional use

Idea	First statement	First institutional use	Years
Sustainable development	1987, *Our Common Future* (WCED, 1987)	1992 Earth Summit (United Nations, 1992); 2015 global goals (United Nations, 2015)	5; 28
Resilience in disaster policy	1973, Holling (Holling, 1973)	2005 Hyogo Framework for Action (UNISDR, 2005)	32
Polycrisis	1993, Morin and Kern (Morin and Kern, 1999)	2023 WEF Global Risks Report (World Economic Forum, 2023)	30 (under 1 from 2022)
Doughnut economics	2012, Raworth (Raworth, 2012)	2020 Amsterdam city adoption (The Amsterdammer, 2020)	8

Source: H Heuristics, from the cited works. "First institutional use" means the first formal use in a UN, intergovernmental or city-government document that this review identified; earlier uses may exist.

Four cases are too few to estimate an average, but they show a pattern. Fast moves had a vehicle: a summit, a pandemic-recovery plan, a war-driven news cycle, or a prominent person carrying the term to a new audience. Slow moves had none. The range, from five to about thirty years, is the realistic window for the framework to move from Stage 1 to Stage 3. A date by 2030 would be quick; by 2040 would be typical.

8.3 What could speed it up or slow it down

- **Accelerants.** A live policy window, since falling aid and rising debt are making reallocation a topical question; a simple tool that a busy official can use; independent researchers who test and extend it; and a short, consistent definition that is easy to cite.
- **Brakes.** Self-publication without peer review; two versions of the concept in circulation; a measurement tool that mostly tracks income; claims that outrun the evidence; and a crowded vocabulary in which resilience already has many meanings.

The accelerants are mostly within the control of H Heuristics; the brakes are largely self-inflicted and fixable. That is good news for the first stage after Stage 1. It implies that the next few steps depend more on discipline than on luck.

8.4 A plausible path to 2100

Putting the evidence together, an illustrative path can be sketched across five periods. It is a scenario, not a forecast, and each step depends on the one before it. The framework's own longrange work uses the same five periods, from 2026 to 2100 (Hughes, 2026o).

Table 9 An illustrative path for the framework, 2026–2100

Period	What would need to happen	Stage reached
2026–2030	Canonical version published; peer-reviewed papers; independent citations and replications; first policy mentions	1 completed; 2 under way
2031–2040	Used in country and agency risk assessments; taught in courses; pilot programmes using the five-stage cycle	2 completed; 3 under way
2041–2050	Standard input to appraisal and budgeting in several institutions; first pilot evaluations with counterfactuals	3 reached; 4 begins
2051–2075	Measured effects on exposure and loss in adopting countries; the idea is part of normal practice	4 under way
2076–2100	Long-run outcomes can be judged; the framework is either absorbed into general practice or replaced by something better	4 assessed

Source: H Heuristics; an illustrative scenario that uses the five periods of (Hughes, 2026o).

The last row deserves emphasis. Success for a framework of this kind may mean that it ceases to be identified as a framework, because its habits of thought become ordinary practice. By then the question of credit matters less than whether people are less vulnerable.

8.5 What to count at each stage

Because Stages 2 to 4 are up to others, the sensible way to follow them is to count independent actions, and not to rely on impressions. Table 10 lists what to count at each stage, where to look, and where things stand today.

Table 10 Indicators for tracking the four stages

Stage	What to count	Source	Today
1. Establishment	Deposits with DOIs; findability in search	Zenodo, Figshare, OpenAlex	15 deposits; found by search
2. Research adoption	Independent citations; peer-reviewed papers; independent applications	OpenAlex, Google Scholar	0 citations; 0 papers
3. Institutional adoption	Mentions in agency, bank or ministry documents; use in appraisals	Policy-document searches; direct enquiry	None found
4. Real-world impact	Change in exposure or loss in pilots, against a counterfactual	Pilot evaluations	Not yet applicable

Source: H Heuristics. "Today" is as of 6 November 2026.

SECTION 09

Could It Affect Billions of People?

Possibly, if it shapes development spending. The honest answer separates how many people might benefit from an investment from how many benefit because of the framework.

IN BRIEF

- A 10% reallocation of 2025 aid is $17 billion a year, five times the share that now carries a disaster-risk label.
- "Tens of trillions" by 2100 needs a return of about 15:1 on that sum, or a larger funding base.
- The framework can claim only the part it actually caused.

9.1 The claim

The Substack article proposes that if institutions shift even 10% of global development financing into proactive, multi-risk buffering, the framework could help shield more than two billion people across emerging economies from acute disruption and preserve tens of trillions of dollars in economic output by 2100 (Hughes, 2026e). The statement is best read as a scenario with stated assumptions. This section sets those assumptions out so that readers can see what would have to be true.

9.2 The arithmetic

The funding base matters. Preliminary OECD data put official development assistance from its members at $174.3 billion in 2025, down 23.1% in real terms from 2024 (OECD, 2026). Ten percent of that is $17.4 billion a year. If about 2% of aid now carries a disaster-risk label (UNDRR, 2025), that is roughly $3.5 billion, so a 10% reallocation would be about five times the present amount (Figure 8). It is therefore a large shift in relative terms and a small one against world output.

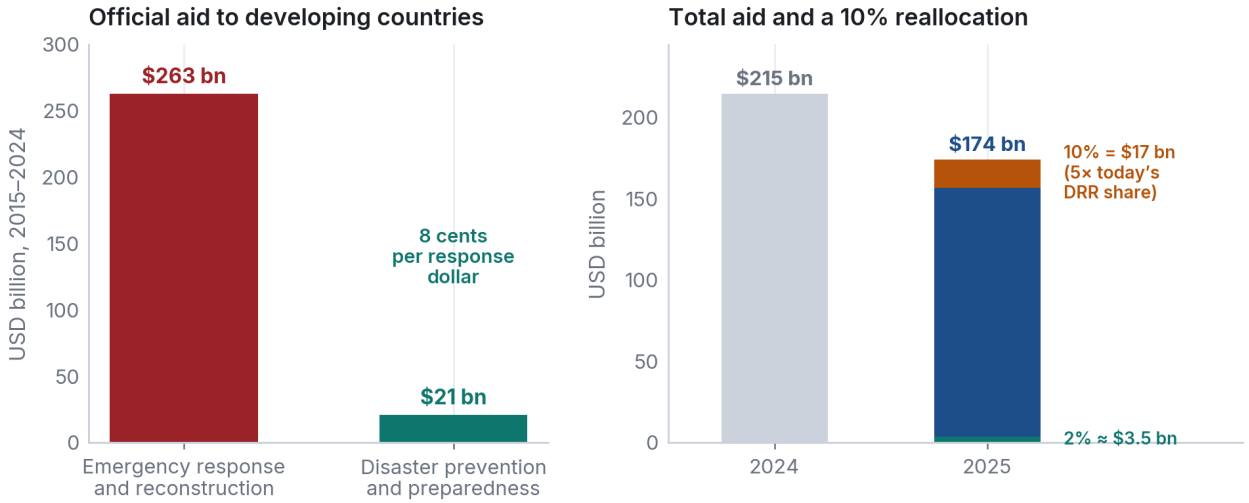
Benefits then depend on the return. Over 75 years (2026–2100), a steady $17.4 billion a year costs $1.3 trillion, undiscounted and in constant dollars. At returns of 4:1, 7:1 and 15:1 the benefits would be $5.2, $9.2 and $19.6 trillion (Table 11). "Tens of trillions", taken as $20 trillion or more, needs a return of about 15:1 on that sum, or a bigger base: with a base twice as large, 8:1 will do; with five times as large, 3:1 will do (Figure 9).

9.3 What you would have to believe

Five things have to be true for the headline numbers to come out. First, the reallocation has to happen, and be sustained for decades. Second, the money has to reach projects whose real returns are as high as the average in the studies, which requires good implementation. Third, the benefits have to be counted without discounting, and over a long span; at a 3% discount rate, the present value of a steady 75-year flow is about 30 times its annual size, which turns the $9 trillion at 7:1 into a present value of about $3.6 trillion. Fourth, the money has to be additional, not taken from other useful spending. Fifth, the benefits have to be assigned to the framework. The last of these is the hardest.

Figure 8 A 10% reallocation of 2025 aid would be five times today's disaster-risk share

Left: aid to developing countries for response and for prevention, 2015–2024 (excluding Türkiye). Right: total ODA and a 10% reallocation.



Source: H Heuristics from OECD Creditor Reporting System data (Hughes, 2026m); OECD preliminary 2025 ODA (OECD, 2026); UNDRR (UNDRR, 2025). 2024 total as reported in news coverage of the OECD data; the 2% share is applied to 2025 as an illustration.

Table 11 Cumulative benefits to 2100 by size of reallocation and return (USD trillion)

Annual reallocation	Cost to 2100	2 : 1	4 : 1	7 : 1	10 : 1	15 : 1	18 : 1
$17 bn (10% of 2025 aid)	1.3	2.6	5.2	9.2	13.1	19.6	23.5
$35 bn (a base twice as large)	2.6	5.2	10.5	18.3	26.1	39.2	47.1
$87 bn (a base five times as large)	6.5	13.1	26.1	45.8	65.4	98.0	117.7

Source: H Heuristics calculation. Constant 2025 dollars, undiscounted, 75 years, benefits equal to cost multiplied by the ratio. Illustrative, not a forecast.

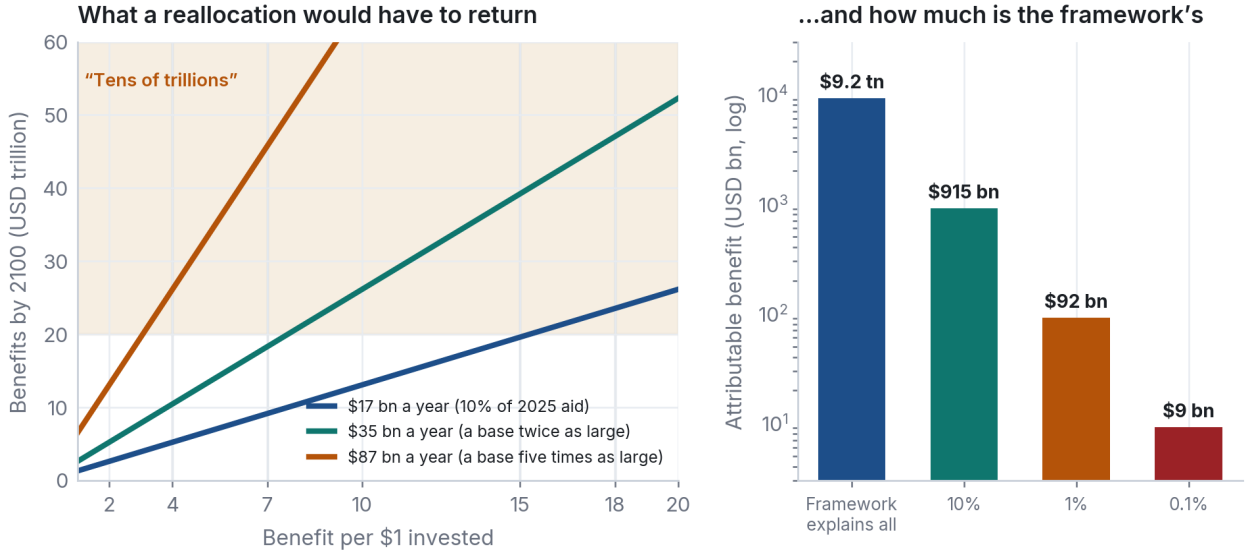
9.4 Protected is not saved

Two billion people is a count of those who might be protected from acute disruption, and not of lives saved. Spread across two billion people, a $17 billion annual reallocation is about $8.7 per person per year, or roughly $654 over 75 years. That is plausible for light-touch measures such as early warning, which the United Nations prices at about $0.50 a person a year (Hughes, 2026l), and it is thin for heavy infrastructure. The people most exposed are not evenly spread, so a realistic programme would concentrate on fewer people at much higher spend per head.

For a sense of human scale, the 21st-century report projects 392 million child deaths from 2026 to 2100 if progress stalls, 208 million at the current pace and 92 million if every country matched the best-performing peers (Hughes, 2026o). The 116 million gap between the last two is what faster development could save. These are scenarios for development in general, not for the framework alone.

Figure 9 A 10% reallocation reaches "tens of trillions" only at a return near 15:1 or from a larger base, and only a share of it would be the framework's

Left: benefits by 2100 against the return per dollar, for three annual sums. Right: the part attributable to the framework if it explains 100%, 10%, 1% or 0.1% of the reallocation.



Source: H Heuristics calculation; scenario inputs from (OECD, 2026; Hughes, 2026e). Right panel assumes a 10% reallocation of 2025 aid at a 7:1 return.

9.5 Where the benefits could show up

If the framework did influence investment, the benefits would appear in several areas at once, which is the point of the multi-risk approach. Table 12 lists eight, with a measure that would show each. Over 74 years, even modest gains in these areas could accumulate into substantial human and economic benefits, but each measure is also affected by many other things, and none would be a clean signal on its own.

GOOD PRACTICE

Three rules for quoting the numbers in this section

- **State the share.** Say how much of a total the framework is credited with, and why.
- **State the counterfactual.** Say what would have happened without it.
- **State the basis.** Say whether dollars are discounted, and over what period.

Table 12 Where benefits could appear and how they would be measured

Area	Potential long-term contribution	A measure that would show it
Public health	Reduced exposure to pollution, disease and extreme heat	Deaths attributed to air pollution; heat-related deaths
Climate adaptation	Fewer losses of homes, livelihoods and infrastructure	Disaster deaths and damage per 100,000 people
Poverty reduction	Greater protection of development gains	Share of people below the poverty line after shocks
Energy	More affordable, reliable and cleaner energy systems	Access to electricity and clean cooking; outage hours
Food and water	Reduced vulnerability to agricultural and water disruptions	Prevalence of hunger; access to safe water
Technology	Faster diffusion of beneficial innovations	Internet use; adoption of clean technologies
Economic development	Fewer costly setbacks and stronger productive capacity	Growth shortfalls and their permanent share
Human survivability	Reduced exposure to interconnected threats	Child and adult mortality against income peers

Source: H Heuristics; areas follow the framework's stated benefits (Hughes, 2026e); measures are the author's suggestions.

9.6 The attribution problem

The final step is attribution. Benefits belong to the framework only to the extent that it *caused* the reallocation, which means comparing the world with it to a world without it. Many forces push in the same direction: aid cuts, climate losses, new research from others, and the preferences of finance ministers. If the framework explained all of a 10% reallocation at a 7:1 return, it would be credited with about $9.2 trillion. If it explained 1%, about $92 billion; if 0.1%, about $9 billion. On the human side, 1% of the 116 million child-death gap would be about 1.2 million lives, and 10% about 12 million. Even the smaller figures would be a notable legacy. The point is not that the figures are small. It is that they should be stated as shares of a stated total, with a counterfactual, and that the large totals are available to the framework only in the sense that a great many contributors share them.

SECTION 10

Overall Assessment

Hunter Hughes has created the beginnings of a potentially consequential intellectual and research contribution. It should not yet be equated with an established policy achievement, but its potential exceeds the visibility of any one publication.

IN BRIEF

- A promising, coherent and openly published foundation; not yet an established contribution.
- The value lies less in describing the world's problems than in organising solutions to several at once.
- Ten tests for 2027–2030 would settle the question.

10.1 The verdict

The overall assessment is that the work is the start of a potentially significant intellectual and research contribution. Its significance should not yet be equated with a major, established international policy achievement. But its potential is considerably larger than the immediate visibility of any individual publication. There is an important distinction here: the value of developing Polycrisis Resilience lies not necessarily in creating another description of the world's problems, but in potentially creating a framework that helps organise solutions to several of them at the same time. Table 13 sets out what the contribution is now, what it could become, and what decides the outcome.

Table 13 The contribution now, what it could become, and what decides it

Kind of contribution	Now (6 Nov 2026)	What it could become	What decides it
Intellectual	A unified, development-oriented framework linking several areas of risk reduction	A standard vocabulary for compound risk	Clarity, one canonical version, outside critique
Development	A set of ideas for coordinating clean development, technology diffusion, adaptation and human development	A tested method for screening investments	Validated measurement; pilot use
Human	A hypothesis that exposure of vulnerable people can fall	Reduced exposure to interconnected threats across generations	Uptake, then evaluation with a counterfactual
Economic	Evidence that prevention often pays; 18:1 untested	Avoided losses through coordinated preventive investment	Project-level evidence on multi-risk packages
Historical	A recognisable framework, openly published	A concept that others use independently	Independent recognition, testing and adoption

Source: H Heuristics assessment.

The greatest possible legacy would be for Polycrisis Resilience to become more than an H Heuristics publication: for it to become a framework that other people, institutions and countries independently use to reduce vulnerability and improve living conditions. That outcome can be pursued but not claimed in advance.

10.2 Strengths and weaknesses

Strengths and weaknesses are listed together so that each can be acted on.

- **Strengths.** A clear definition that adds *reducing vulnerability* to the usual list. Integration of climate, health, energy, technology, finance and institutions. Public data and DOIs. A willingness to publish results that complicate the framework's own tools. A timely focus on prevention while aid is falling.
- **Weaknesses.** Self-published and not yet peer reviewed. No independent citation, test or use. A composite measure that mostly tracks income. Two cuts of the concept still in circulation. An 18:1 return that has not been measured and a $7 figure whose underlying study was not located. A phrase that others also use. AI summaries that name tools the series has not published.

10.3 Ten tests for 2027 to 2030

The following tests are suggestions. They turn the assessment into things that can be counted. Each is stated so that an outsider could check it, and a framework that passes most of them by 2030 would have a strong claim to be an established contribution (Table 14).

Table 14 Ten tests that would settle the question by 2030

#	Test	Today	Suggested threshold
1	One peer-reviewed paper setting out the definition and framework	0	At least 1 by end 2027
2	Independent citations to H Heuristics work on the concept (OpenAlex)	0	At least 10 by end 2028
3	Independent empirical studies that apply the definition	0	At least 3 by 2029
4	A single canonical definition, capacity list and index name	Two cuts	One by mid 2027
5	A resilience measure that beats an income-only baseline on data it was not built from	Composite tracks income (R^2 0.86)	Out-of-sample gain by 2028
6	A replication package: code and data for every scorecard	PDFs and public data	Complete by early 2027
7	A tested multi-risk package return, from at least three project evaluations	18:1 hypothesis	Estimate with range by 2029
8	A mention in a policy document of a government, bank or UN agency	None found	At least 1 by 2029
9	A pilot that applies the five-stage cycle in a country or agency	None	At least 1 by 2030
10	A pilot evaluation that measures change against a counterfactual	Not applicable	Report by 2030

Source: H Heuristics. Thresholds are proposals, not forecasts.

10.4 What this means for different readers

- **Researchers.** The framework is ready to be tested. The most useful contribution is an independent test of whether the capacity measures predict outcomes better than income alone, and a critique of the definition.
- **Policymakers and funders.** The logic of treating development spending as risk reduction is well supported, and the case for shifting spending towards prevention is strong. Use the concept as a screening question now, and wait for validated measures before using it to rank countries or allocate money.
- **H Heuristics.** Consolidate, source, replicate and submit. A small number of well-checked papers will do more for the concept than another dozen reports.
- **Readers of AI summaries.** Treat them as pointers. Check any named model, index or number against the published definition and papers before relying on it.

10.5 Conclusion

Polycrisis Resilience has done the first thing an idea must do: it has been stated clearly enough to be examined. It has also done something harder, which is to run its own tests in public and report the ones that did not go its way. What remains is the work that cannot be done by the author alone. Independent researchers must test it, institutions must choose whether to use it, and, years from now, someone must measure whether people were less vulnerable because they did. The framework's promise is considerable. Its claim on history will be decided by whether others pick it up.

For now, the sound way to describe the contribution is in the terms this report has used throughout: a clear and connected framework, openly published and candidly tested, whose recognition and effects are still to be earned. That is a good place to be at nine weeks, and an honest one from which to begin.

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About H Heuristics. H Heuristics is an independent research practice founded by Hunter Hughes. It publishes research on polycrisis, resilience, development and the clean transition, with an emphasis on public data, transparent methods and practical recommendations. Reports are available at researchreports.hheuristics.com.

About this report. This report assesses the intellectual contribution of Polycrisis Resilience: its definition and framework, the research programme built on it, the economic argument for it, and its possible impact through 2100. It separates what has been shown from what is only possible.

Disclaimer. The views expressed are the author's. Scenario results are illustrative calculations, not forecasts. Every effort has been made to verify facts against original sources; claims that could not be verified are flagged. Corrections are welcome.