

The Top 100+ World Crises Growing with Growth

Measuring the Combined World Crisis: growing in kind and levels of threat

From: Growth Escalating the Force, Speed, & Acceleration of Our World Collision with Natural Limits.

Causing rapidly growing world crises that compound each other to become ever more unmanageable.

- Things to take care of all around the house -



The following tables bring attention to the tidal wave of highly varied world crises from the economy's growing global demands on people, resources, and nature. The aim is also to clarify the need to focus on ***BOTH the many urgent symptoms AND the real source of the threat, an economy that profits from undermining the wealth-generating potential of the earth.*** So, every local effort needs to also point to the heart of the world problem.

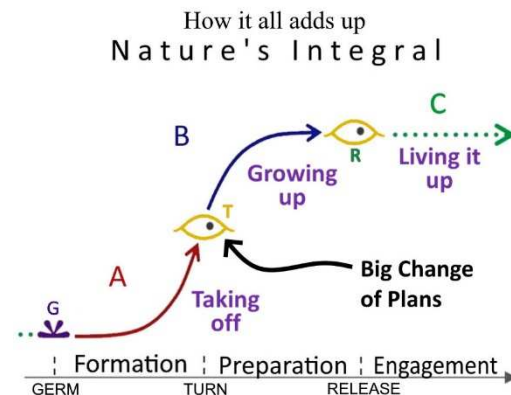
- Table 0 is a list of major reports and studies.
- Table 1 lists 8 main categories, "**General Threats System Overuse – Eight Wide Categories of Growing Systemic Distress.**"
- Table 2 lists "**12 Signs of Approaching Limits of Resilience, System Strain, Disorder**" *You need these general signs of systems in trouble to anticipate new crises and trace ones we already face.*
- Table 3 has 8 sections, A to H (listed in Table 1), describes the varied world crises caused by our **maximizing the growing force, speed, and acceleration of the economy's collision with natural limits**, divided into the eight categories of Table 2, as sub-tables.

As you will see, I have tried to be comprehensive but will have left out or misstated issues you and others might find important. Please email updates or additions. Mention the table and category for reference. Table three is such a long list I have not had time to do more than summarize some accumulated

understanding of a few, adding references I run across. This list was started in early 2019 with a short collaborative essay by Jan Cox and me for the UN NGO effort to steer the SDGs toward sustainability.

https://synapse9.com/r3ref/2019-NGO_MG-BriefingOnTheCombinedCrisis.pdf)

People tire of hearing only about erupting crises, so let me mention what seems to be the true solution to our global problem. Most people think of growth only as an increasing number. It's also generally the emergence of a new natural system. **Check it out!** So, the image below is about the three main stages of natural system genesis, a **Formation (red)**, **Preparation (blue)**, then **Engagement (green)**; steps **A**, **B**, **C**. The greatest challenge is the **Big Change in Plans**, from explosion in without competition (**A**) to harmonizing relationships with others (**B**), maturation, and release to have a good life. It's nature's way of building systems. and become good homes healthy long-living how people expert in building and lives.



Signs of a Planet In Distress

Line	Loc	Typ	Val	Crises	Short Description	Cost in % GDP	Research Links	Images
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Authors — Add your info fyi, Word doc on request — lots of other things needed

Date	Name	email	Code	Val	Comment
2021 11-25	Jessie Henshaw	sy @ synapse9. com			Current World Crisis list count - 114


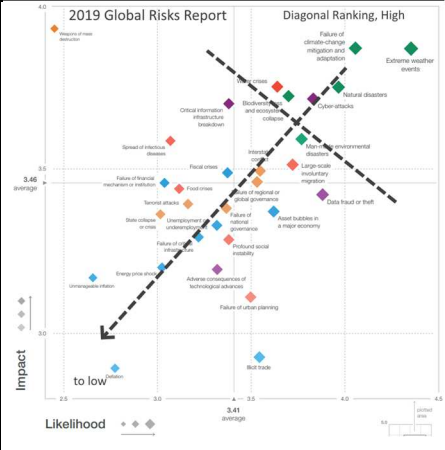
0. Leading Impact Documentation, Indicators, Impact Aggregators

Line	Loc	Typ	Val	Subject	Issues	Research Links	Images
9				Another scientist's excellent study of the combined crises.	An excellent 40 min 2021 lecture on the combined crises by the noted scientist Bill Rees.	<p>blog post introduction: https://un-denial.com/2021/02/06/by-william-rees-climate-change-isnt-the-problem-so-what-is 2021 Lecture: https://youtu.be/9oVTHKzC7TM</p>	
8				<p>UNEP FI 2020 Impact Radar</p> <ul style="list-style-type: none"> An impact identification tool to allow holistic impact analysis across SDGs 	<p>22 performance indicators reflecting SDG values, designed to coordinate with Holistic Impact Analysis business assessment tools for <i>translating macro objectives in each category with micro objectives</i></p> <p>The radar captures the core elements of the SDGs in a way that applies to business. It is anchored in international definitions and standards. It is global, neutral, and practical. A cornerstone of the approach to financing sustainable development advocated by the Principles for Positive Impact Finance.</p> <p>Release of an Impact Radar and several Model Frameworks for holistic impact analysis in 2018, embedding the impact analysis requirements in the Principles for Responsible Banking in 2019. UNEP FI released hands-on tools for holistic impact analysis: the Bank Portfolio Impact Analysis Tool and the Corporate Impact Analysis Tool.</p>	<p>https://www.unepfi.org/wordpress/wp-content/uploads/2018/11/PI-Impact-Radar.pdf</p>	

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7				<p>Emergency on Planet Earth Written by Dr Emily Grossman with the support of the XR Scientists community</p> <p>Fact-checked and reviewed by a wide range of experts in relevant fields</p>	<p>The number of extreme climate-related disasters - including extreme heat, droughts, floods, and storms - has doubled since the early 1990s, and studies have shown that more than two-thirds of all extreme weather events investigated were made more likely, or more severe by human-caused climate change.</p>		<p>https://docs.google.com/document/u/0/d/1QdWn7PCDqNUQvzmPaJPMEXqsXKAVcuEOMPxcIVdaKjw/mobilebasic</p> <p>Images shows number of extreme climate disasters per year.</p>	<p>Number of reported disasters per decade - 1971 to 2010</p> <table border="1"> <thead> <tr> <th>Decade</th> <th>Total Disasters</th> </tr> </thead> <tbody> <tr> <td>1971-1980</td> <td>743</td> </tr> <tr> <td>1981-1990</td> <td>1,534</td> </tr> <tr> <td>1991-2000</td> <td>2,386</td> </tr> <tr> <td>2001-2010</td> <td>3,496</td> </tr> </tbody> </table> <p>World Meteorological Association - Atlas of Mortality and Economic Losses From Weather, Climate and Water Extremes - 2014</p>	Decade	Total Disasters	1971-1980	743	1981-1990	1,534	1991-2000	2,386	2001-2010	3,496
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6				<p>The EU Taxonomy 2020/03 EU meant as “a tool to help investors, companies, issuers and project promoters navigate the transition to a low-carbon, resilient and resource-efficient economy”</p> <p>[[jlh – neglects all the growing pressures of growth, on energy use, societal & ecological system, such as from growing consumption congestion, disruption, and inequality, etc]]</p>	<p>The EU taxonomy is a tool to help investors understand whether an economic activity is environmentally sustainable, and to navigate the transition to a low-carbon economy.</p> <ul style="list-style-type: none"> Climate Change Mitigation Climate Change Adaptation Sustainable Use and protection of water and marine resources Pollution Prevention and Control Transition to Circular Economy, Waste prevention and recycling Protection of Healthy Ecosystems 		<p>Intro - http://unpri.org/eu-taxonomy</p> <p>Article - https://www.unpri.org/sustainable-markets/eu-sustainable-finance-taxonomy/4567.article</p> <p>March 2020</p> <p>TEG final report on the EU taxonomy</p> <p>Non-Financial Reporting Directive guidelines</p>	<p>Like all government plans, proposing to reduce carbon while growing energy demand</p>										
5				SDSN Sustainable Development Report	Due to the virus compounding previously poor progress, now all 17 goals showing unclear, mixed or sharply negative performance		https://s3.amazonaws.com/sustainabledevelopmentreport/2020/2020_sustainable_development_report.pdf											
4				<p>Stockholm Resilience Centre Nine Planetary Boundaries</p> <p>[[jlh - Great science but proposes to correct a system that works as a whole one part at a time, neglecting the interactions and central financial drivers]]</p>	<ol style="list-style-type: none"> Stratospheric ozone depletion Loss of biosphere integrity (biodiversity loss and extinctions) Chemical pollution and the release of novel entities Climate Change Ocean acidification Freshwater consumption and the global hydrological cycle Land system change Nitrogen and phosphorus flows to the biosphere and oceans Atmospheric aerosol loading 		<p>https://www.stockholmresilience.org/research/planetary-boundaries/planetary-boundaries/about-the-research/the-nine-planetary-boundaries.html</p> <p>Legend:</p> <ul style="list-style-type: none"> Beyond zone of uncertainty (high risk) In zone of uncertainty (increasing risk) Before boundary (safe) Boundary not yet quantified 											

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Line	Loc	Typ	Val	Crises	Short Description	Cost in % GDP	Research Links	Images
3				The Great Acceleration			www.igbp.net www.stockholmresilience.org www.futureearth.info www.globaia.org www.anthropocene.info The trajectory of the Anthropocene http://www.igbp.net/globalchange/greatacceleration.4.1b8ae20512db692f2a680001630.html	
2				2019 Global Assessment Report on Disaster Risk	- “Disaster risks emanate from development pathways, manifesting from the trade-offs inherent in development processes. In some ways, this has always been well recognized. What is new in today’s increasingly interconnected society is the diversity and complexity of threats and hazards, and the complex interaction among them, which result in “an unprecedented global creation of risks, often due to previous socioeconomic development trends interacting with existing and new development dynamics and emerging global threats.” P 418		GAR website Conclusion	
1				2019 WEF Global Risks Report	Global Risks out of Control - Is the world sleepwalking into a crisis? Global risks are intensifying, but the collective will to tackle them appears to be lacking. Instead, divisions are hardening. The world’s move into a new phase of state-centered politics, noted in last year’s Global Risks Report, continued throughout 2018. The idea of “taking back control”—whether domestically from political rivals or externally from multilateral or supranational organizations—resonates across many countries and many issues. The energy now being expended on consolidating or recovering national control risks weakening collective responses to emerging global challenges. We are drifting deeper into global problems from which we will struggle to extricate ourselves.		http://www3.weforum.org/docs/WEF_Global_Risks_Report_2019.pdf	

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Table 1– Signs and Symptoms of Approaching Limits of System Distress

Line	Loc	Typ	Val	Condition observed	Type of emerging distress	Potential Points of influence	
1				Growth Imperative	During its initial exponential period, growth is itself becomes a systemic instability itself, resolved by natural systems during maturation IF enough of the seed capital is distributed	Since growth is driven by investment in development, one can potentially shift the priorities of investment to address societal and biophysical necessities rather than just finance	An example is a proposal to reduce the excesses of finance, to recognize the natural fiduciary duty of business and investors = https://synapse9.com/signals/2020/05/26/global-fiduciary-duty-for-investors/
2				Increasing Rigidity	Stress and loss of resilience make systems rigid and fragile. The balloon only pops after its flexible surface is stretched until it might tear at any point. People, companies, and societies pushed to their limits become rigid before they break too.	These biophysical principles are gathered from long observation https://synapse9.com/signals/the-key-scientific-question/	
3				Strains and deformities	Destructive wearing. Distributed threats. Divergent growth rates a sign of growing strains. Scattered spots of new intrusions		
4				Loss of resilience	Slower recovery time. Loss of cushions, freedoms, tolerance, generosity		
5				Sacrificing standards	Living on debt, Pressed to becoming dependent on shortcuts, Ignoring infrastructure, accepting efficiencies that sacrifice stability, extremism		
6				Abnormal interruptions	Increasing struggle and downtime as a sign of congestion, confinement & growing conflicts of interests		
7				Abnormal behavior	Mice jumping ship or birds go silent. Declining responsiveness. Shakes or unfamiliar tremors. Divided interests in times of crisis, calling for joint efforts.		
8				Silent messenger	When the canary in the mine dies, there's no more alarm, like a Silent Spring, when birds or insects vanish without warning.		
9				100 Overtaking crises	See tables 3-A to 3-I		
10				Unusual silence	Nature 'abhors a vacuum' and emerging systems initially need an orderly calm to develop. Like kids		

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					getting into mischief may be signaled by an unexpected calm, or the calms before a local storm.			
11				Increasing overhead costs	Approaching systemic bankruptcy as maintenance costs exceed available income. Diminishing resource returns on resources invested (EROI) Rising environmental costs. Stubborn societal budget inflation.			
12				Growing systemic conflict	Crises of all kinds forming waves of disruption, “plagues of plagues.” Shifting focuses on increasingly desperate responses, the whole coming unglued. The impossible crises of the hour			

Table 2–Types of Widening Gaps in Environmental and Societal Impact Assessment and Response (Categories for Table 3)

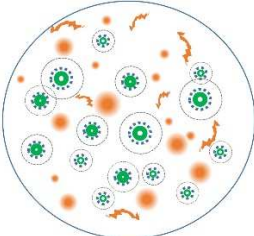
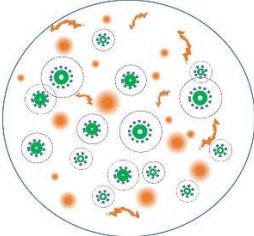
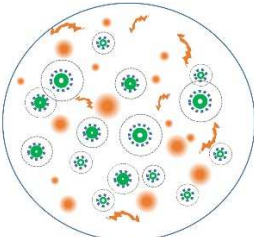
Line	Loc	Typ	Val	Main Categories of Growing Crises	Key 1		Key 2
		Ord		A. Organizational Distress - Crowding, Overload, Congestion, Confinement, Imbalance, Interference B. Mental Distress, Misunderstanding, Information Overload, Misread & Changing Signals C. Increasing Solution Failures – Forward steps that slide backward D. Economic And Social Disruption – Societal threats E. Environmental Disruption – Conflicts with nature F. Human Resource - Depletion And Degradation G. Natural Resource - Depletion And Degradation H. Societal Unmanageability - Loss of Resilience, Rising Overhead I. Cultural breakdown/failure to reproduce, discontinuity	<u>Locations zones</u>	<u>Type of Responsibility</u>	<u>“Val” Threat level Values</u>
		Mdi			Sys = Systemic	DA => impact can be measured and	Extreme- 5
		Isf			Reg = Regional	<u>Directly Attributed</u> to those responsible	Intolerable 4
		Esd			Loc = Local	CA => impact is systemic and only	High - 3
		Edi			Eco = Environmental	<u>Collectively</u>	Medium- 2
		Hrd			Soc = Societal	<u>Attributed</u> to shares of responsibility for the economy as a whole	Low- 1
		Ndd			Ecn = Economic		<u>Economic cost</u>
		Sro			Gov = Governance		<u>Text dividers.</u> to keep each entry a single line without line breaks as needed to paste into the XLS file
		Cbd			Fam = Family		
				New Entry			

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Table 3–100 Growing World Crises Appearing To Mark the Crossing of Planetary Boundaries of Systemic Distress (from maximizing the force, speed, and acceleration of our economic collision with natural limits.)

A. Organizational distress - Crowding, Overload, Congestion, Confinement, Imbalance

Line	Loc	Typ	Val	Crises	Related Issues	Cost in % GDP	Research Links	Images
1		Org	4	Growth of distressed populations	Tied to growing habitat loss, resource loss, dependence on fossil fuels for food and other services --Perpetuated by ineffective aid		In a system that works as a whole, increasing pressure on one part can be absorbed or pushed back on others, such as when the whole comes under distress.	
2		Org	4	Unequal economic playing field.	From winners investing in their own success in a pursuit of maximizing growth of inequality. With losers suffering government and cultural breakdown.			
3		Org	4	Systemic burdens of crowding and congestion	Crowding & congestion increase confinement & interference, the time it takes to do things, the spread of contagious diseases. It results in a loss of freedoms and an increase in complications. Its natural limit is when sudden breakdowns can occur, like spontaneous traffic jams and the natural disruption of smooth flows called turbulence. Congestion is also a burden of societal, environmental, and economic complexity, adding to the difficulty of change and irregularity of flows. It is also produced directly by the multiplying complexity of our world and our forced adaptations to limits of growth.			
4		Org	5	Social and economic costs of complexity	Ever increasing complexity of regulations, best practices, negotiations, designs and decision making. Systems designed for		Hidden reason why US virus lab tests fell way behind. NYTimes 20-05/21 “These Labs Rushed to Test for Coronavirus. They Had Few Takers”	

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Line	Loc	Typ	Val	Crises	Short Description	Cost in % GDP	Research Links	Images
					efficiency not agile. --Complication for implementing designs, the 'rule book' often discarded if it's in the way, avoidance of due process and attraction of corruption — expand coronavirus testing, by making it difficult for hospitals to switch to new labs with ample capacity.”		By Katie Thomas —“The fragmented U.S. health care system has hampered efforts to https://www.nytimes.com/2020/05/21/health/coronavirus-testing-lab-capacity.html?searchResultPosition=1	
5		Org	4	Increasing hurry with ever more complicated systems and tasks	- number of meds & complexity of conditions, simple reading and sorting tasks		Overloaded 12Pharmacists Warn They're Making Fatal Mistakes13	
6		Org	4	Increasing societal overhead costs	The cost of supporting the growing populations of economically and physically handicapped. Deserving no doubt but increasingly unaffordable. As health care, the military and Social Security are increasingly paid for by increasing debt too.. So we need a “change of life” rather than to continue running our life into the ground.			
7		Org	4	Congestion and confinement as intrusion	on personal and cultural space, and so on personal and cultural freedoms and movement.			
8		Org	4	Increased threat of pandemics	The extensive travel and congested population centres —“ The tradeoff between efficiency and resilience is confronted by every sector of society. ” —Dennis Meadows article: —Limits to Growth and the COVID-19 epidemic		https://www.chelseagreen.com/2020/limits-to-growth-covid-epidemic/	
9		Org	5	Aging & inflexibility of intolerant, interdependent, and complex systems	The stress of economic demands forces a reduction in preparation for unusual combinations of threats. — The 2021 Texas freeze disaster, state-wide power industry—optimized to maximize profit in warm weather —collapsed all over from a simple cold snap, not rare, but more frequent kind of extreme weather event due to climate change.			

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B. Mental Distress - Misunderstanding, Information Overload, Misread & Changing Signals

Line	Loc	Typ	Val	Crises	Related Issues	Cost in % GDP	Research Links	Images
1		Mdi	4	Invisible coupling of growth and its complications	People unaware the news does not give a fair picture of the system. Lack of information on the impacts of profits lead to uninformed profitmaking decisions			
2		Mdi	5	Mismeasurement of impacts	Ignorance of the growing untraceable impacts of money. Counting only what business controls omits the global impacts its economic demands also cause.. Failure to take responsibility for the whole			
3		Mdi	4	Solution failures and denial	UN SDG backslide, lack of SDG progress			
4		Mdi	5	Emerging silos of misinformation	Social media bubbles masquerading as the world, lack of information as denial.			
5		Mdi	5	Mistaking current welfare as an absence of environmental threats	UN SDGs and other wellbeing indicators fail to factor in real sustainability —also mistaking income with wealth when income undermines long term capital			
6		Mdi	4	Ignorance of the systemic point of diminishing returns	Suppression of discussion of limits to growth. Political reactionary movements			
7		Mdi	5	Ever-growing demand for productivity complicating and stressing everyone	Blowback as solutions become the problem. Driving a world increasingly dedicated to peace to make peace with environmental war			

C. Increasing Solution Failures

Line	Loc	Typ	Val	Crises	Related Issues	Cost in % GDP	Research Links	Images
1		Isf	4	Designs for maximizing growth to crash through its natural limits	driving “conservatives” to challenge all comers with their believe endless growth is a birth right. unleashing our whole wave of growing systemic crises			

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Line	Loc	Typ	Val	Crises	Short Description	Cost in % GDP	Research Links	Images
2		Isf	3	Designing the economy for a dispersed travel system	when travel and dispersal linked to high value energy consumption. and would become major barriers to adapting to climate change			
3		Isf	5	Making the economy's guiding plan maximizing the growth rate of financial profits.	Fooling Leaders and the public into Losing track of nearly everything else we are doing			
4		Isf	3	The wholesale denial of limits to growth, substituting "sustainability"	Which in the details is a direct continuation of limitless growth with nicer terminology			
5		Isf	3	Using efficiency to reduce energy use increases it	In a growth economy unit efficiency will 1) tend to multiply units consumed and 2) remove systemic bottlenecks, and so increase resource use. Jevons' principle		Jevons paradox - Wikipedia	
6		Isf	4	Growth solutions create the growing problems —	Among the more curious counterintuitive results of great solutions to the needs created by capitalism is they tend to multiply until that becomes the problem , creating devoted mass movements before thoroughly betraying them. — Examples include basing the economy on multiplying energy uses that start as solutions and then create ever greater problems.			
7		Isf	5	System efficiency as a growth resource ends up stripping away resilience and adaptability	When natural shocks occur the system can't smoothly respond, like high-rise towers make it hard for business to follow their workers working at home.		Or as with sudden shutdowns and restarts around COVID, during the shutdowns businesses shed unneeded capacities that are hard to restore when needed.	

D. Economic and Social Disruption

Line	Loc	Typ	Val	Crises	Related Issues	Cost in % GDP	Research Links	Images
1		Esd	4	Strains of keeping up with demands for increased productivity	People like technical fixes, then are dismayed when replacing them takes over, to repeat them again and again.. Rearranging how we live and use the earth faster and faster			

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Line	Loc	Typ	Val	Crises	Short Description	Cost in % GDP	Research Links	Images
2		Esd	5	Growing overhead cost of fighting nature	Depletion of resources raising their cost. growing costs of maintaining and caring for everything.			
3		Esd	4	“Creative destruction” growing distressed communities	As growth accelerates change it tends to rip up and discard working solutions of the past ever faster.. with productive centers racing far ahead it leaves behind growing communities of people with no place to fit in.			
4		Esd	4	Failures of poverty elimination	Communities that experienced profound failure and perpetuate cultures of failure.. a proud culture would build the learning world they could revive in.. an example may be the current jail reform movement,. thinking to apply to cultural jails people find themselves in, like that produced the opioid epidemic.			
5		Esd	4	Disruptive rates of change	Our information system so very prone to misinformation, building out the design for a new world without individual responsibilities			
6		Esd	5	Growth imperative	Both an addiction to “free money” being blind to its ever growing costs to the earth and society, and. a financial practice of making profit to multiply profit that the financial culture had no idea was inherently limited.			
7		Esd	4	Unequal competition	Economics says the dominance of the successful provides the greatest good to the greatest number,. When the successful only invest in themselves, as is generally the case, the distributive effect of wealth stops.			
8		Esd	4	Digital infrastructure risk	The digital tools and data formats that become unreadable, as system memory decay. Interconnection of systems as a hacking threat.			
9		Esd	3	Global financial risk	Betting on ever faster increasing income from a diminishing resource is a sure bad bet, waiting for failure.. The financial system may be more prepared for this than it seems, but a crash to last a long time seems most likely. people with life			

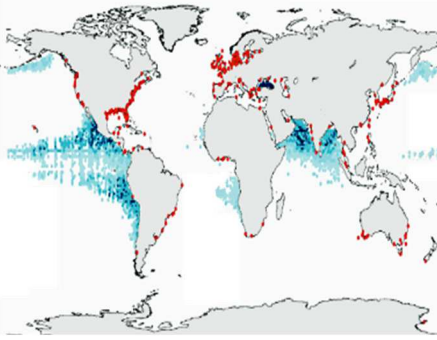
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Line	Loc	Typ	Val	Crises	Short Description	Cost in % GDP	Research Links	Images
					savings accounts relying on stability, are clearly not prepared though			
10		Esd	4	Increasing economic inequity	As environmental resistance increases only the most competitive			
11		Esd	5	Rising disaster risks and costs	All these different kinds of crises create growing disasters in people's lives with as rapidly growing costs. That ever faster rising global disaster cost makes our growth agenda totally unprofitable			
12		Esd	3	Industrial pollution	Regulation and innovation have greatly reduced visible pollution, except for the ones we can't seem to decouple from generating wealth, like CO2, like plastic, and whatever pollutant it is causing the autism epidemic.			
13		Esd	5	Rising oceans, and coastal flooding	Still "locked in" due to our finding no way to make the radical changes required to halt warming,. is the seeming sure major loss of coastal civilization in the next century or so.. as all plans still are to maintain boundless growth of energy use to grow the economy,. using renewables only to ADD to fossil fuels			
14		Esd	2	Development climate zone changes,	One of the greatest costs of climate change is likely to require us to rebuild our homes, and provide solar farms with 2 to 4 times the floor area, to heat and cool them.			
15		Esd	3	Extremes of weather forces	We've seen important increases in weather severity, and good research indicates it's likely to accelerate until we make quite radical changes.. Climate change is directly related to air movement, increased air movement to compensate for the increased insulation value of the air.		https://synapse9.com/signals/2019/12/17/growth-constant-fingerprints-of-economically-driven-climate-change/	
16		Esd	3	Extremes of high and low river flow	Swings between flood and draught on river basins causing havoc for agriculture, planning and recovery.			
17		Esd	3	World Food Crises	Climate change crop failures, reliance on industrial rather than community farming practices. —Planetary boundaries		https://en.wikipedia.org/wiki/Planetary_boundaries	

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18		Esd	3	World hunger	Endemic poverty in virtually every country.— International crises		https://en.wikipedia.org/wiki/International_crisis	
19		Esd	4	The severity of COVID-19	Spread by the air flight of the wealthy to hit rich and poor in a congested world with great force, handicapped by “just in time” economies without disaster planning capability, manmade getting worse over time.			

E. Environmental Disruption

Line	Loc	Typ	Val	Crises	Related Issues	Cost in % GDP	Research Links	Images
1		Edi	5	Climate change	Myriad disruptive changes to the norms of the earth, we'd never have guessed even if initially more responsive.		Wikipedia - Planetary boundaries —	
2		Edi	4	Ocean Acidification	CO2 absorbed threatens corals and other fragile shelled animals, potentially threatening the whole food chain of the oceans.		Wikipedia - Planetary boundaries	
3		Edi	3	Ocean deoxygenation and expansion of hypoxic zones -	Sixty years ago, only 33 ocean sites suffered from low oxygen levels. That number skyrocketed to 700 in 2011. . River outflow located eutrophication (red). Global hypoxic zones 2%, ½ caused by global warming. (blue) — The UNESCO — CBS News		Ocean is Losing its Breath. Declining Oxygen in the World's Ocean and Coastal Waters — World's oceans are losing oxygen at a dangerous, unprecedented rate as temperatures rise. https://en.wikipedia.org/wiki/Ocean_deoxygenation	

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Line	Loc	Typ	Val	Crises	Short Description	Cost in % GDP	Research Links	Images																				
4		Edi	4	Biodiversity Loss, Great mass extinction			Wikipedia - Planetary boundaries — Google scholar Biodiversity Trends	<p>Insect Abundance —</p> <table border="1"> <thead> <tr> <th>Realm</th> <th>Freshwater</th> <th>Terrestrial</th> <th>Both realms</th> </tr> </thead> <tbody> <tr> <td>Boreal/Alpine</td> <td>(12 47)</td> <td>(14 116)</td> <td></td> </tr> <tr> <td>Temperate</td> <td>(69 833)</td> <td>(44 462)</td> <td></td> </tr> <tr> <td>Drylands</td> <td>(11 62)</td> <td>(5 16)</td> <td></td> </tr> <tr> <td>Tropical</td> <td>(12 119)</td> <td>(5 21)</td> <td></td> </tr> </tbody> </table> <p>Trend slope % change per year</p> <p>Realm: ▲ Freshwater ■ Terrestrial ■ Both realms</p>	Realm	Freshwater	Terrestrial	Both realms	Boreal/Alpine	(12 47)	(14 116)		Temperate	(69 833)	(44 462)		Drylands	(11 62)	(5 16)		Tropical	(12 119)	(5 21)	
Realm	Freshwater	Terrestrial	Both realms																									
Boreal/Alpine	(12 47)	(14 116)																										
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Drylands	(11 62)	(5 16)																										
Tropical	(12 119)	(5 21)																										
5		Edi	3	Food chain threats, and moving habitats,	Polar bears stranded, Coffee zones moving,. African agriculture zones, Opening of Canadian and Russian north. Ocean CO2 pollution,																							
6		Edi	4	Animal Habitat Loss	Human development concentrated in former wildlife homes.. Paving over soils. Human-animal disease interactions. Deforestation —																							
7		Edi	4	Sharp Animal population decline	Population decline - Living Planet Index.		https://royalsocietypublishing.org/doi/full/10.1098/rstb.2004.1584	<p>Growth Constants of Global Economic Environmental Pressures and the Living Planet Index</p> <p>Index value (1970 = 1)</p> <p>Trillion 2015 GDP (PPP)</p> <p>Energy 2.04%/yr</p> <p>CO2 Eq 1.72%/yr</p> <p>Efficiency (GDP/PI) 1.19%/yr</p> <p>"Great Recession"</p> <p>LPI 1971 1976 1981 1986 1991 1996 2001 2006 2011 2016</p> <p>JLH</p> <p>Components indexed to GDP (PPP) at 1971, proportional to relative growth rates</p>																				
8		Edi	5	Loss of pollinators	In global decline of bee species, bumble bees in particular now, bat populations																							
9		Edi	4	Contamination/decontamination of soils	Chemical pollution, only moved not eliminated as each storage site becomes a chemical threat to people																							

Signs of a Planet In Distress

Line	Loc	Typ	Val	Crises	Short Description	Cost in % GDP	Research Links	Images																															
10		Edi	4	Invasive species & ecological disruption	Boreal forest loss due to invasive parasites. Chinese river fish taking over the Chicago river and water system clogging shellfish in the great lakes, spread by shipping vessel dumping of waste water taken in elsewhere.. Pets or animals imported for one reason and becoming invasive. forest loss																																		
11		Edi	4	Agricultural land loss	Industrial disturbance. urban and suburban sprawl —		Wikipedia - Planetary boundaries																																
12		Edi	4	Land devoted to waste disposal	Fracking effluent pits, ever expanding chemical and urban waste dumps,. superfund sites.																																		
13		Edi	5	Freshwater depletion	Mining aquifers and desertification of farmland		Wikipedia - Planetary boundaries																																
14		Edi	4	Natural Resource Depletion And Degradation	Ever faster consumption of finite natural resources.		Wikipedia - Planetary boundaries —4.1.3 Nitrogen cycle 4.1.4Phosphorus 4.1.8 Ozone depletion 4.1.9Atmospheric aerosols 4.1.10Chemical pollution																																
15		Edi	5	Insect Armageddon?? —	Meta-analysis reveals major declines in terrestrial but increases in freshwater insect abundances. —		Science 24 Apr 2020: Vol. 368, Issue 6489, pp. 417-420 DOI: 10.1126/science.aax9931 — https://science.sciencemag.org/content/368/6489/417	<p>Figure C: Trend slope (% change per year) for Freshwater, Terrestrial, and Both realms across four biomes: Boreal/Alpine, Temperate, Drylands, and Tropical. The x-axis ranges from -0.02 to 0.03. Freshwater is represented by blue triangles, Terrestrial by orange squares, and Both by black circles. Sample sizes (n) are shown for each category.</p> <table border="1"> <thead> <tr> <th>Biome</th> <th>Realms</th> <th>n</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Boreal/Alpine</td> <td>Freshwater</td> <td>12</td> </tr> <tr> <td>Terrestrial</td> <td>47</td> </tr> <tr> <td>Both</td> <td>14 116</td> </tr> <tr> <td rowspan="3">Temperate</td> <td>Freshwater</td> <td>69</td> </tr> <tr> <td>Terrestrial</td> <td>833</td> </tr> <tr> <td>Both</td> <td>44 462</td> </tr> <tr> <td rowspan="3">Drylands</td> <td>Freshwater</td> <td>11</td> </tr> <tr> <td>Terrestrial</td> <td>62</td> </tr> <tr> <td>Both</td> <td>5 16</td> </tr> <tr> <td rowspan="3">Tropical</td> <td>Freshwater</td> <td>12</td> </tr> <tr> <td>Terrestrial</td> <td>119</td> </tr> <tr> <td>Both</td> <td>5 21</td> </tr> </tbody> </table>	Biome	Realms	n	Boreal/Alpine	Freshwater	12	Terrestrial	47	Both	14 116	Temperate	Freshwater	69	Terrestrial	833	Both	44 462	Drylands	Freshwater	11	Terrestrial	62	Both	5 16	Tropical	Freshwater	12	Terrestrial	119	Both	5 21
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16		Edi	4	Ocean Noise Pollution	Interference with the silent world used for ocean life communication, —When the baby clown fish grow big enough to swim against the tide, they high-tail it home. The fish can't see the reef, but they can hear its snapping, grunting, gurgling, popping and croaking. These noises make up the soundscape of a healthy reef, and larval fish rely on these soundscapes to find their way back to the reefs, where they will spend the rest of their lives — that is, if they can hear them.		https://www.nytimes.com/2021/02/04/science/ocean-marine-noise-pollution.html?searchResultPosition=1 — https://science.sciencemag.org/cgi/doi/10.1126/science.aba4658 —Cont: But humans — and their ships, seismic surveys, air guns, pile drivers, dynamite fishing, drilling platforms, speedboats and even surfing — have made the ocean an unbearably noisy place for marine life, according to a sweeping review of the prevalence and intensity of the impacts of anthropogenic ocean noise published on Thursday in the journal Science,																																

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Line	Loc	Typ	Val	Crises	Short Description	Cost in % GDP	Research Links	Images


F. Human Resource Depletion And Degradation

Line	Loc	Typ	Val	Crises	Related Issues	Cost in % GDP	Research Links & Images
1		Hrd	3	Increase in People living with disability	An effect of interfering with the survival of people, raising the 'unproductive' medical overhead cost		
2		Hrd	3	Genome drift favoring medically risk prone people	An effect of interfering with the survival of people, raising the 'unproductive' medical overhead cost		
3		Hrd	5	Regions of distress, despair, and social breakdown	The "Trump base" culture bound together by despair. Regions not recovering from the loss of industry. Cultural isolation zones perpetuating economic distress		
4		Hrd	4	Loss of human languages	approximately 90% of existing languages expected to be dead or unrecoverable by the end of the. Roland, Ethan C. and Gregory Landua. 2013. Regenerative Enterprise: Optimizing for Multi-. Capital Abundance		https://www.rescue.org/article/top-10-crises-world-should-be-watching-2019 - Venezuela, Democratic Republic of Congo, Central African Republic, Nigeria, South Sudan, Ethiopia, Somalia, Yemen, Serbia, Afghanistan.
5		Hrd	4	Government breakdowns	Failed societies from both being economic displacement and internal political discord. The invasion of malign indigenous sub-cultures responding to the global disruptions of their ways of life, as people hating the world.. Often the result of economic displacement in a world where the rich do take ever more of the spoils.		
6		Hrd	4	Involuntary traumatic migration	From widespread governance breakdown. And global aid being better at growing helpless populations than really helping them. Given all the convergent opposing forces.. Republic 4. Burundi 5. Ukraine 6. Venezuela 7. Mali 8. Libya 9. Ethiopia 10. Palestine		Norwegian Refugee Council's annual list of the world's most neglected displacement crises 1. Cameroon 2. The Democratic Republic of the Congo 3. The Central African

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Line	Loc	Typ	Val	Crises	Short Description	Cost in % GDP	Research Links	Images
7		Hrd	4	Traumatic societal distress	Epidemic drug addiction. Political and economic governance failures			
8		Hrd	5	Distressed populations and communities	Shifting technology excluding its former regions and localities. Cultural distress causing regional drug addiction		https://www.drugabuse.gov/drug-topics/trends-statistics/overdose-death-rates	<p>Figure 2. National Drug-Involved Overdose Deaths*, Number Among All Ages, 1999-2019 USA</p> <p><small>*Includes deaths with underlying causes of unintentional drug poisoning (X60-X64), suicide drug poisoning (X65), or drug poisoning of undetermined intent (Y10-Y14), as coded in the International Classification of Diseases, 10th Rev. Source: Centers for Disease Control and Prevention, National Center for Health Statistics. Multiple Cause of Death 1999-2019 on CDC WONDER Online Database, released 12/2020.</small></p>
9		Hrd	3	Urban migration and Rural flight. Mass migration.	Moving wealth to the cities away from the country. Abandoning sustainable rural communities, for swelling rootless populations of cities			
10		Hrd	3	Loss of Indigenous cultures & knowledge	A deeply shameful process of economic genocide. Hard to see how it can be undone, other than by making space for continuity.			
11		Hrd	3	Declining quality of relief	In an ever more demanding and less resilient world that is ever less space for true relief and relaxation.			
12		Hrd	3	Diseases of Prosperity/Affluence	diseases of affluence include mostly chronic non-communicable diseases (NCDs) with economic development believed to be an important risk factor		https://en.wikipedia.org/wiki/Diseases_of_affluence	
13		Hrd	3	Human Genome Pollution	Thought to naturally result from medical interventions that increase the viable reproduction of unhealthy people, such as for NCDs, artificial immunity with vaccinations			
14		Hrd	3	Growing diseases of healthcare	Overuse of antibiotics and life extension's effect of increasing the number and severity of illnesses we live with. Increasing global contact risks pandemics. Healthcare shifting the gene pool toward more unhealthy people			
15		Hrd	1	Spread of drug resistant diseases	Drug resistance could kill 10 million people per year by 2050 Science 7/30/21 "The post-antibiotic era is here"		https://www.who.int/news-room/factsheets/detail/antibiotic-resistance	

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Line	Loc	Typ	Val	Crises	Short Description	Cost in % GDP	Research Links	Images
					https://www.sciencemaginedigital.org/sciencemagazine/30_july_2021/MobilePagedReplica.action?u1=40152616&utm_source=newsletter&utm_medium=email&utm_campaign=TXSCI2210729002&utm_content=gtxcel&pm=1&folio=471#pg7		https://www.cdc.gov/drugresistance/biggest-threats.html	
16		Hrd	3	Hollowing out of essential workers	Traditionally low paid skilled labor, nursing, teaching, child care, civil service, hospitality -- becoming too stressful and unaffordable		https://www.cnn.com/2021/11/24/the-great-resignation-is-more-of-a-great-reckoning.html	

G. Natural Resource Depletion And Degradation

Line	Loc	Typ	Val	Crises	Related Issues	Cost in % GDP	Research Links	Images
1		Ndd	4	Medicinal, biochemical, and genetic resources	In global decline			
2		Ndd	5	Natural Resource depletion	Loss and depletion of soils, loss of ground water,			
3		Ndd	5	Deforestation	Caused by development. as in Iran for fuels and the Amazon by people setting fires to clear land.		Loss of Iran's Zagros forests from wildfires https://www.sciencemaginedigital.org/sciencemagazine/28_august_2020/MobilePagedArticle.action?articleId=1614419&app=false#articleId1614419 — North African forests falling to charcoal https://www.sciencemaginedigital.org/sciencemagazine/28_august_2020/MobilePagedArticle.action?articleId=1614418&app=false#articleId1614418	
3.1		Ndd	4	Deforestation by Encroachment	Macro-Development in locations that will predictably weaken forest edges.,		2020 Development plans for India, Development projects jeopardize India's forests — https://www.sciencemaginedigital.org/sciencemagazine/28_august_2020/MobilePagedArticle.action?articleId=1614381&app=false#articleId1614381	

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Line	Loc	Typ	Val	Crises	Short Description	Cost in % GDP	Research Links	Images
3.2		Ndd	4	Deforestation by Ecological and climate change	Boreal forest loss due to climate accelerated insect spread. California forests up in flames due to climate desciation and dry lightning.			
4		Ndd	5	Fresh water crisis	Ground water depletion, clean river water depletion. Floods from too much rain in too short a time			
5		Ndd	5	Ocean pollution with plastic waste	The ocean gyres of floating plastic, with so many other crises and chemistry no solution, as yet, we toy with very marginal solutions like alternate shopping bags.			
6.1		Ndd	4	Lake and ocean plastic and microplastic waste	Often consumed disabling sea birds, mammals, and ocean life lake and ocean pollution			
6.2		Ndd	4	Ocean floor microplastics	Concentration at deep sea biodiversity hotspots.		<p>Jun 5 2020 Science - Seafloor microplastic hotspots controlled by deep-sea circulation. — Study in Mediterranean off the coast of Italy — here, we demonstrate that the spatial distribution and ultimate fate of microplastics are strongly controlled by near-bed thermohaline currents (bottom currents). These currents are known to supply oxygen and nutrients to deep-sea benthos, suggesting that deep-sea biodiversity hotspots are also likely to be microplastic hotspots.</p>	
6.3		Ndd	5	Overfishing	National fleets ignoring coastal rights. National resistance to global regulation.			
7		Ndd	3	Climate habitat zone shifts	Resource migration. Fish and crab climate zone shifts. Coffee soils and climate zone shifts. regional resource loss. Highway habitat division			
8		Ndd	4	Ocean dead zones	Runoff from agricultural or high population rivers.			
9		Ndd	5	The drying of forests prone to fire	Fires in Russia, California, Australia, likely to cause major culture change.			
10		Ndd	5	Accumulating GHGs pollution			<p>https://www.wri.org/news/beyond-renewables-how-reduce-energy-related-emissions-measuring-what-matters</p>	

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Line	Loc	Typ	Val	Crises	Short Description	Cost in % GDP	Research Links	Images
11			4	Environmental inequity	The natural match between less economic success and worse choices of environment, made worse by congestion, is extensively documented, but the causation is not left at that.—The important angle seems to be that the distress for “essential workers” with less environmental choice. a glaring systemic failure, a “canary in the coal mine.”		Inequity in consumption of goods and services adds to racial—ethnic disparities in air pollution exposure — https://www.pnas.org/content/116/13/6001.short	<p>The image contains two main parts. On the left, there are seven maps of the United States showing PM_{2.5} concentration in µg/m³. The maps are color-coded from green (low concentration) to red (high concentration). The maps are labeled with various sources: 'Biogenic, Wildfire & International', 'Road Dust', 'Diesel, Wood Combustion', 'Construction', 'Industrial', 'Heavy Duty Diesel Veh.', 'Construction', 'Coal, Elec. Util.', and 'Agriculture'. On the right, there is a Sankey diagram showing the flow of emissions from 'Emitters' to 'End Use' and 'End User'. The 'Emitters' side lists categories like 'Transportation', 'Industrial', 'Construction', 'Coal, Elec. Util.', and 'Agriculture'. The 'End Use' side lists 'Transportation', 'Shelter', 'Services', 'Goods', 'Food', and 'Electricity'. The 'End User' side lists 'Other Countries', 'Government', 'Whiter/Other', 'Hispanic', and 'Black'. A legend indicates 'Domestic' (light blue) and 'Exports' (dark blue).</p>
12		Ndd	5	Declining resource quality	As the best resources are used first, we end with ever faster growing resource demands for poorest resources.			

H. Societal Unmanageability - Loss of Resilience, Rising Overhead, False Visions

Line	Loc	Typ	Val	Crises	Related Issues	Cost in % GDP	Research Links & Images
1		Sro	5	Economic misdirection and regional failures, destroying multiple capitals for short term profit	Strategic error in building the future on a model of the past. Not responding to the growth of costly externalities as a sign to shift from takeoff growth strategies to landing growth strategies.		
2		Sro	5	Failures of both science and governance in guiding an ever more complex and rapidly changing economy.	UN climate response failure to see the primary cause of climate change has always been growth. Failure to study growth in nature to understand how it usually builds secure homes for the system doing the building. Consider the massive commitment of the UN to the SDGs, only to find they relied on growth having the opposite of its natural effect.		
3		Sro	4	Failure of science to notice the natural roles of growth in nature	False theory of nature as using our models of control. The Centrality of growth in natural systems ignored by science.		

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Line	Loc	Typ	Val	Crises	Short Description	Cost in % GDP	Research Links	Images
4		Sro	5	Trusting efficiency to reduce impacts when it very clearly does the reverse.	The very clear global data is that Jevons was quite correct, that improving unit efficiency in a growth economy multiplies unit production to drive impacts exponentially.			<p>Growth Constants of the World Economy Indexed by Growth Rate Components indexed to GDP(PPP) at 1971 proportional to relative growth rates</p> <p>World GDP 3.24 % 22 yrs Meat Prod 2.60 % 26 yrs Food Prod 2.31 % 30 yrs Energy Use 2.04 % 34 yrs CO2 PPM 2.06 % 37 yrs CO2 emission 1.73 % 41 yrs Efficiency 1.19 % 69 yrs</p>
5		Sro	5	Becoming inured to growing crises we would never have condoned before	Markets heading for the sky and culture breaking apart			
6		Sro	5	Increasing solution failures	Rapid technological succession, solutions multiplied till they become the problem and force societal disruption			
7		Sro	3	Sustainability non-compliance Report by the United Nations Global Compact 3	% or UN member organizations —37% reflect goals into a code of conduct, — 31% articulate sustainability positions within subsidiaries, — 33% integrate sustainability principles into the parent organization’s — 63% develop and evaluate sustainability policies at the CEO level, — Fewer than 10% of link executive pay to their sustainability performance; — 20% include sustainability performance standards into employee evaluations. — 2013 Global Corporate Sustainability		https://www.unglobalcompact.org/library/371	
8		Sro	4	Regional and National Government failure	People revolting due to failure of governments to serve the common subject. Hong Kong, Iran, Iraq, Lebanon, Algeria, Argentina, Bolivia, Ukraine. Conflict between local and global econ forces			
9		Sro	4	Breakdown of democracy	Breakdown of distressed nations and regions, Authoritarian ascendancy — European & US far right wings, Putin and Xi Jinping leading perpetual economic and political war.			
10		Sro	4	Sovereign debt	Debt in US growing twice as fast as the economy, seeming to say the spending of			

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Line	Loc	Typ	Val	Crises	Short Description	Cost in % GDP	Research Links	Images
					borrowed money is our only source of real growth.			
11		Sro	5	Obsessions with sectarian conflict	Unclear if ancient sectarian violence is greater now, but sure seems like it, with religions continuing to say my way or the highway to everyone in ear shot			
12		Sro	5	Frantic pace of change	Our minds fool us by presenting the ever faster changing world in daily changing snapshots that seem to present the “ever present” as not changing. No effort to keep the culture as a whole up on how the world it is part of is making everything it knows outmoded. Parents having little way to relate to the world of their children			
13		Sro	4	Neglect of existing infrastructure	Rebuilding things is more costly than building them in the first place, and as crises emerge collective responses to each shrink rather than grow.			
14		Sro	4	Neglect of future infrastructure	Failing to see that the end of growth requires a vision for the future, how to make a sustainable world. Difficult for a culture that does not know how we got to where we are			
15		Sro	5	Short term dodges for long term crises	Mining resources ever faster. Replacing people with technology. Counting local impacts and not global.			
16		Sro	5	Shrinking patience with events, as all systems seem to change ever faster	Logical future of technology in making past technology more rapidly outmoded. Strategies hampered by ever shifting foundations			
17		Sro	5	Rapidly growing challenges	Climate change then land encroachment of climate change solutions			
18		Sro	5	Failing circular resource plans	An economy with circular resource use does not exist, but it remains most everyone’s favorite false solution.			
19		Sro	5	Gross miscalculation of business environmental impacts,	Failure of sustainability science to develop any plan for internalizing all our externalities., miscalculation of climate change costs, totally ignoring growth		Just writing off the environmental impacts of business people, see SEA http://www.mdpi.com/2071-1050/3/10/1908/	
20		Sro	5	Underestimate of growing disaster risks	Ignoring the disaster growth rates built into sustaining global growth.			

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Line	Loc	Typ	Val	Crises	Short Description	Cost in % GDP	Research Links	Images
21		Sro	5	Vast uncounted economic impacts	Failure to account for impacts of businesspeople in the supply chains for end products.—Failure to account for systemic impacts now associated with individual business operations			
22		Sro	4	Terrorism	Erupting in many forms around the world, a new constant. .			
23		Sro	4	Illicit financial flows	Tackling Illicit Financial Flows (IFFs) at the United Nations: what will the FACTI Panel deliver?		Download UN Monitor #13 (pdf version). — Wikipedia	
24		Sro	4	Major Political crises			https://en.wikipedia.org/wiki/International_crisis	
25		Sro	5	Financial growth imperative	Ever rising demand for financial returns from finite and insecure global resources.			
26		Sro	2	Rising culture conflict as a divergence of world views.	Simultaneous unification of world culture as rapid change violates the realities of many combative sub-cultures.			
27		Sro	4	Government problem-solving failures, from solving the wrong problem	Endemic poverty and drug dependence caused by economic displacement follow in the wake of investing in economic successes.			

I. Cultural breakdown/discontinuity/failure to reproduce working ways of knowing and living

Line	Loc	Typ	Val	Crises	Related Issues	Cost in % GDP	Research Links & Images	Images
1		Cbd	4	Unmanageable convergence of crises	The combined effect of all the kinds of earth crises listed above render many cultures inept and disinherited, breaking cultural continuity		Cultural continuity over thousands of years is the human inheritance, except for repeated “dark ages” when cultures die, very possible to be the natural end of modern global growth culture,	
2		Cbd	4	Cultural discontinuity, the succession problem, loss of heritage	Cultures contain all the worldviews on which people rely. When they become impossible, such as from increasingly rapid and hasty change, cultural abandonment occurs.			
3		Cbd	5	Threat of civilizations collapse Not just “diminishing returns” on investment but real	The long history of dark ages between peak civilizations provides something of a map of how it happens, society creating conditions their cultures cannot reverse,		Why Civilizations Collapse Shows a highly speculative but fertile imagination of how it happens, an intuitively coherent view of societal collapse as an irreversible failure to	

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Line	Loc	Typ	Val	Crises	Short Description	Cost in % GDP	Research Links	Images
				economic and social bankruptcy.	like an unforgiving environment. —As such, it is not due to outside forces, but inside forces such as relying on exponential growth, driving impossible challenges and destroying environments.		reproduce societal knowledge. A real warning for the disruptive change and social chaos we are developing today. @SamoBurja	
4		Cbd	4	Growing social polarization	As life becomes more stressful, local distress cultures emerge, speaking fictional conspiracies attempting to explain the very real suffering from a world increasingly out of balance —As democratic systems lose public trust, cells of authoritarian culture emerge.			
5		Cbd	4	Separation of cultures into cells of incompatible language	The systems of nature not recognized as such in a world of cultures defining their own concepts for reality			

Added Ref's and Notes

Date	Source & comment	Code	Val	Item