

The accident already happening: Why we've been fighting the wrong war for 130 years

I still remember the phone call I received nearly twelve years ago, in the middle of the night at 1:47 a.m. It was another “accident” at a chemical plant I had consulted for only twelve months prior. As I drove through the deserted streets toward the plant, a single thought consumed me: we had done everything correctly, yet this had happened again. That night was a turning point for me. It wasn't the scene at the facility – I had witnessed similar disasters many times before – but the profound realization of what I had been overlooking for years.

The invisible epidemic

It is deeply concerning that, despite more than 130 years of progress since the birth of chemical engineering, the effort to prevent accidents has not succeeded – and the situation continues to worsen.

Every year, chemical manufacturers invest billions in safety systems, hire the best consultants, implement cutting-edge Process Safety Management Systems, and achieve perfect compliance scores. Yet accidents keep happening with the regularity of a metronome. Different companies, different locations, different chemicals – same devastating results.

We've created an entire industry around accident prevention, yet we're no closer to eliminating them – even after more than 130 years. In fact, I'd argue we're further away than ever, because we've become so sophisticated at treating symptoms that we've forgotten to question the disease itself.

The day everything made sense

Ten years ago, I was reviewing

incident reports from twelve different chemical plants across four continents. On the surface, these incidents had nothing in common – different processes, different failure modes, different immediate causes. But as I dug deeper, a pattern emerged that made my blood run cold.

Every single “accident” was preceded by months, sometimes years, of smaller incidents that were never classified as accidents at all. Environmental releases that were “*within acceptable limits*.” Equipment degradation that was “*scheduled for maintenance*.” Human errors that were “*isolated incidents*.” Organizational decisions that were “*cost-effective*.”

These weren't accidents waiting to happen – these were accidents already happening, invisible to our traditional definition.

The definition that blinds us

As I dug deeper into the history of accident definitions, something fascinating – and troubling – emerged. Over 130 years, dozens of experts, organizations, and regulatory bodies have attempted to define what an accident truly is. Different words, different emphasis, different contexts. Yet when I stripped away the academic language and industry jargon, they all converged on the same core message: “an accident is an incident that is unplanned, unintentional, uncontrolled and not inevitable leading to property damage, personal injury, ill health or fatality.”

For 130 years, we've defined an accident as “an unplanned, unintentional, uncontrolled incident leading to property damage, personal injury, or fata-

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lity.” This definition has shaped every safety protocol, every investigation, every prevention strategy we've ever developed.

Think about that for a moment. An entire century of brilliant minds, all arriving at essentially the same conclusion. This definition has shaped every safety protocol, every investigation methodology, every prevention strategy we've ever developed across the global chemical industry.

And it's fundamentally broken.

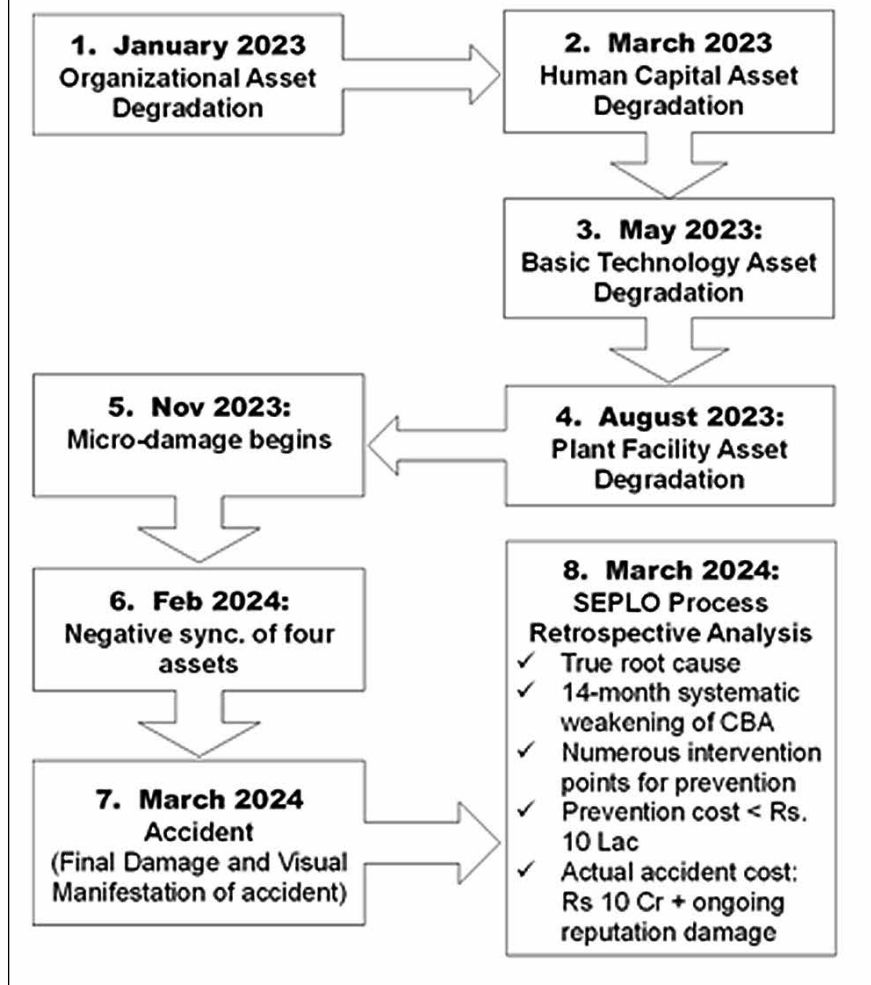
This definition only recognizes damage after it's already catastrophic. It's like having a fire alarm that only sounds after the flames have consumed your entire process unit. By the time we call something an “accident,” it's already too late – the real damage was done months or years earlier.

But here's the revelation that changed everything for me: What if accidents aren't sudden events at all? What if they're slow-motion environmental degradation that we've trained ourselves not to see?

Bhopal: The accident that started years earlier

Everyone knows about December 3, 1984, when methyl isocyanate gas leaked from the Union Carbide plant in Bhopal. Everyone talks about the immediate causes – operator error, faulty valves, disabled safety systems. But the real accident started years earlier. It started when financial pressures led to reduced maintenance budgets. It started

The SEPLO View Timeline



when experienced operators were replaced with less trained workers to cut costs. It started when safety systems were considered “optional” during shutdowns to save money.

The environment around that plant – not just the physical environment, but the technological, plant facilities, human, and organizational environment – had been degrading for years. The gas leak wasn’t an accident; it was the inevitable conclusion of a process that had been underway since the plant’s profitability declined.

If we had recognized this environmental degradation as the real accident, if we had acted on it years earlier, 8,000 people would still be alive today and 558,125 would not have been injured.

The revolution hidden in plain sight

After that sleepless night ten years ago, I spent months questioning everything I thought I knew about safety. I studied accidents differently, looked for patterns differently, and slowly, a revolutionary truth emerged that turned everything upside down:

We’ve been looking at accidents backwards for 130 years

An accident isn’t something that suddenly appears and causes damage. An accident is the slow, insidious process that damages the very environment in which we operate – long before we ever see flames, explosions, injuries, or equipment failures.

Not just the physical environment – the entire ecosystem that supports safe operations. This includes your technological environment (your processes and knowledge), your facility environment (your equipment and infrastructure), your human environment (your people and their capabilities), and your organizational environment (your culture and systems).

When any part of this ecosystem degrades, you’re already in an accident. You just don’t know it yet.

The four assets of environmental integrity

This new understanding revealed something profound: safety isn’t about preventing accidents – it’s about maintaining environmental health. And this environment rests on four interconnected assets:

- Your **Basic Technology** environment – the fundamental processes, flow schemes, and knowledge that define your operations. When this degrades, you get process drift, knowledge gaps, and technological obsolescence.
- Your **Plant Facility** environment – the physical infrastructure that houses your operations. When this degrades, you get equipment failures, maintenance backlogs, and infrastructure collapse.
- Your **Human Capital** environment – the people and capabilities that execute your operations. When this degrades, you get skill gaps, cultural erosion, and human errors.

Traditional View Timeline

January 2023
Normal Operations
✓ All well

June 2023
Routine Maintenance
✓ All well

March 2024
Accident
✓ Sudden catastrophic mechanical seal failure
✓ 5000 lit of toxic chemical released
✓ 5 operators exposed, 1 hospitalized
✓ Rs.10 Cr damage (cleanup, maintenance, lost production, regulatory fines)

March 2024
Investigation & Remediation
✓ Root cause: "Mech seal failure - normal wear"
✓ Corrective action: Replace all similar seals
✓ New procedure: Increase inspection frequency to quarterly

👉 Your **Organisational** environment – the systems and culture that guide your operations. When this degrades, you get poor decisions, resource constraints, and systemic failures.

Traditional accident prevention focuses on symptoms – causes. My method – what I call the SEPLO Process – focuses on strengthening the entire ecosystem of chemical manufacturing business.

Why your current approach is failing

I need to share something uncomfortable: every safety professional you're working with, every consultant you've hired, every expert you've trusted – they're all operating from the same broken definition that created your problems in the first place.

They're not incompetent. They're not lazy. They're victims of the same systematic blind spot that has plagued our industry for over 130 years. They're trying to prevent smoke while the fire spreads unseen beneath their feet.

This isn't their fault – it's the inevitable result of an entire profession built on a flawed foundation. You can't solve 21st century environmental degradation with 20th century incident definitions.

The cost of staying blind

Every day you operate with the traditional accident definition, your environment continues to degrade. Your profits are being consumed not just by the accidents you can see, but by thousands of micro-accidents you can't: equipment running slightly less efficiently than designed, processes operating just outside optimal parameters, people working around problems instead of solving them, and organisations making decisions that prioritise short-term savings over long-term stability.

These aren't "normal business challenges" – they're accidents happening in slow motion, and they're costing you more than any single catastrophic event ever could.

The path forward

I've spent the last ten years developing and implementing what I call the NextGen Process Safety Management System. It's built on environmental health rather than incident prevention, on ecosystem strengthening rather than

damage control. Through my SEPLO Process, I've begun demonstrating how chemical manufacturers can identify and address environmental degradation years before it manifests as traditional "accidents." The initial results are compelling: early implementations show promising signs of not just preventing catastrophic events, but creating pathways to dramatic improvements in efficiency, profitability, and sustainability.

But here's what I've learned: this transformation can't be achieved through incremental improvements or traditional consulting approaches. It requires a complete paradigm shift, a fundamental rewiring of how you think about safety and operations.

Your moment of truth

I'm going to be direct with you: you have a choice to make. You can continue operating with the same definition, the same approaches, and the same experts that have failed to solve this problem for 130 years. You can keep investing in symptom management while your environment continues to degrade beneath the surface.

Or you can acknowledge that the accident happening at your facility right now – the one you can't see yet – needs to be stopped before it becomes visible.

The chemical manufacturing industry is at a turning point. The companies that embrace environmental health management will thrive in the com-

ing decades. The companies that cling to traditional accident prevention will continue to burn profits on an endless cycle of crisis and recovery.

The only way out

After over four decades in this industry, after consulting with chemical manufacturers worldwide, after developing the only truly revolutionary approach to process safety in over a century, I can tell you this with absolute certainty: You cannot solve this problem with traditional thinking. You cannot fix environmental degradation with incident prevention strategies. You cannot break the cycle of repeating accidents by doing more of what hasn't worked for 130 years. The SEPLO Process and NextGen PSMS aren't just improvements on existing approaches – they're a complete departure from them. They require someone who understands both the old paradigm's limitations and the new paradigm's potential. I am that person. And right now, I am the only person who can guide you through this transformation.

The urgency is real

While you're reading this article, your environment is changing. Equipment is degrading. Processes are drifting. People are adapting to problems instead of solving them. Organisations are making decisions that weaken long-term stability for short-term gains.

The accident that will define your

company's future is already in progress. The only question is whether you'll recognize it and act on it before it becomes visible to traditional definitions. The question becomes: will you continue operating with partial vision, or will you seek to understand what's really happening beneath the surface of your operations? Will you remain trapped by traditional definitions, or will you explore the transformation that could eliminate these invisible accidents while turning your safety investments into profit generators?

Because here's the truth that will determine your company's future: in this industry, you're either strengthening your environment or you're burning your profits. There is no middle ground. The choice is yours. But the opportunity to make it won't last forever.

REFERENCE

1. Rajendra Utturkar, "Earn or Burn Your Profits" published 2024

ABOUT THE AUTHOR

Rajendra Utturkar is the author of "Earn or Burn Your Profits" and the world's only expert in NextGen Process Safety Management System – the SEPLO Process. He has developed the SEPLO Process for safe and efficient plant operation, alleviating the environment and enhancing profits.



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