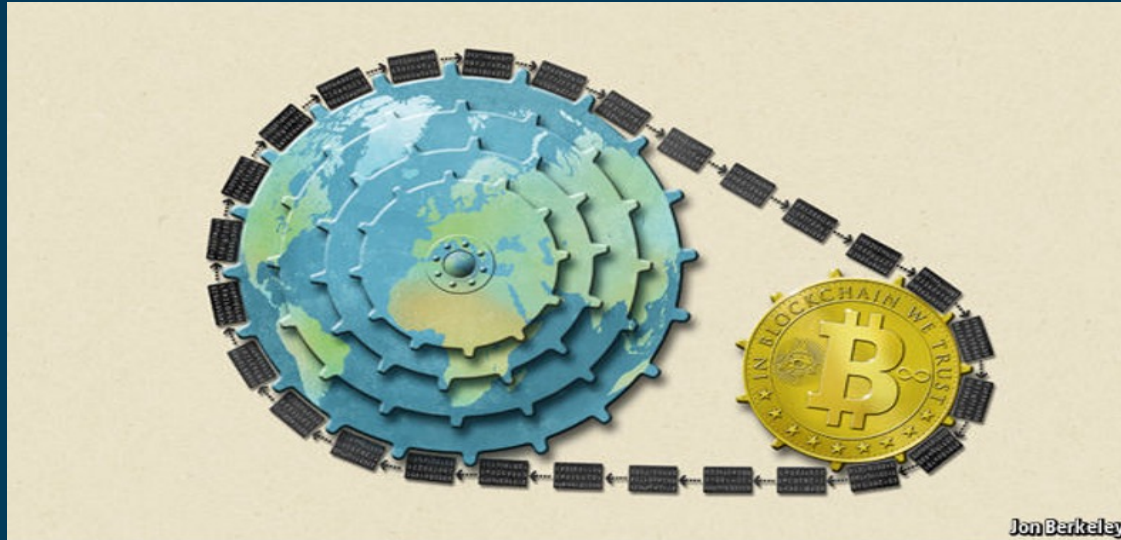


# Blockchain and Disaster Risk Reduction Management *Themes and Questions*



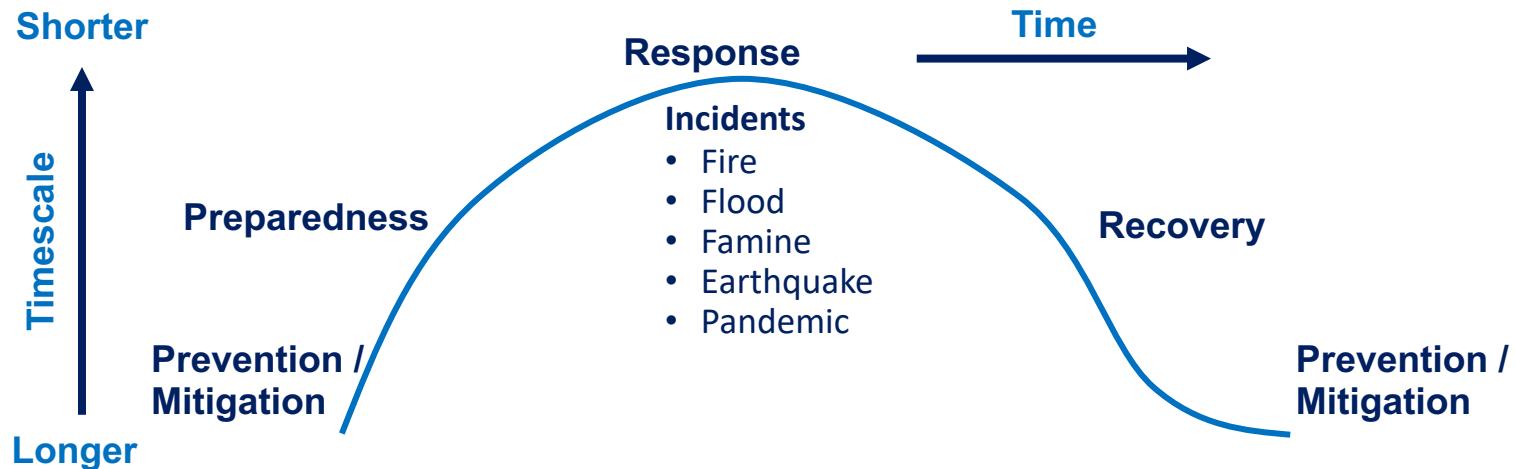
Jon Berkeley

June 15, 2021

Neil H. Wasserman, Costis Toregas, Jean-Fabrice Lebraty  
FrontiersIn.org – Blockchain and DRR publication project

# Blockchain for DRR processes

Addressing 1) *Risk*, 2) *Governance*, 3) *Resilience*, 4) *Preparedness*



## Blockchain Applications

- Asset registration
- Personal / entity identity
- Data access, permissioning, validation
- Transaction records and conditions (supply chain)
- Contracts management



## DRR Impact

- Funds and outcomes tracking
- Health data infrastructure – disease and vaccination tracking
- Predictive modeling – disaster risk mapping
- Carbon accounting and trading
- Infrastructure certification
- Resource allocation, distribution, and balancing
- Monitoring – GPS and IoT data integration and security

# Growing pains for adolescent technologies

## Internet in 1990's

- Dotcom boom produces hype and volatility
- Good for email, blogs, and advertising
- 1990's ? – What's the Internet really good for?

## Internet in 2021

- Internet grows up – market dominance in commerce, logistics, streaming
- Risks – privacy, hacking, informational bubbles, political volatility

## Blockchain in 2010's

- Crypto boom produces hype and volatility
- Good for cryptocurrency trading
- 2010's - What's can blockchain really do when it grows up

## Blockchain in 2021

- New crypto boom.
- More acceptance by banks, government regulators
- Slow growth in applications in finance, public sector, healthcare
- Risks – illicit activity, volatility, crypto penetration, no clear business model

***Key Success Factor: Technology implementation requires suite of related tech components – networks, consensus, cybersecurity, data storage, machine learning... plus a viable business model.***

# DRR challenges

- Cognitive obstacles to future orientation, consequences of exponential change, tipping point processes
- No magic bullet –
  - Multiple cumulative risks – Energy use, food production, permafrost thawing, ocean storage limits, embedded infrastructure
  - Multiple solutions – green energy, carbon transparency
- Lack of incentives for local change in behavior and investment
- Means for global coordination – first mover issues
- Compressed timeline for action – critical importance of the next two decades
- Disparate languages for policy makers and technologists

# Basis for optimism

- Growing public awareness of climate and related DRR challenges
- Acceleration in technology solutions – lower green energy costs, better data, safer power production
- Maturing of blockchain and related distributed technologies
- Prospect of international collaboration
- Acceptance of time-advanced action for disaster mitigation

# Questions

- What are the most promising pilot types for Blockchain and DRR? Criteria for selecting candidates? **(e.g., time-frame, impact, resource requirements, risks)**
- What are the targets for funding sources?
- What are appropriate metrics?
- What governance mechanisms should oversee Blockchain applications for DRR?
- How can we promote the growth of communities of interest like this one and relationships with other groups?
- What publication topics would best serve our objectives?