Climate and health public engagement

Leadership program

Topic area: Systems Thinking

Session title: Live case – Preventing pandemics at the source (PPATS)

Funded by

Dalberg

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Agenda

01	Preventing pandemics at the source	*(15 min)*
02	The situation	*(15 min)*
03	Our systems change theory	*(10 min)*
04	Our impact to date	*(10 min)*
05	Lessons learned	*(10 min)*
06	Q&A	*(30 min)*

01 Preventing pandemics at the source

PPATS is a powerful coalition of leading health and environment actors working to prevent pandemics at the source

Coalition Members

Conservation International
Dalberg Catalyst
EcoHealth Alliance
Health In Harmony
Association of Zoos & Aquariums
ifaw
INCT EECBio
Jane Goodall Institute
Marked by COVID
PIVOT
Right to Health Action
Tenure Facility
The Nature Conservancy
re:wild
WCS
World Resources Institute
WWF

Academic Affiliate

Harvard T.H. Chan School of Public Health | C-CHANGE Center for Climate, Health, and the Global Environment
Harvard Global Health Institute

Our **diverse members** work at the intersection of

- Health
- Environment
- Wildlife
- Indigenous People's rights
- Health justice
- COVID-bereaved and disabled

Coordinated by a **lean, nimble** Secretariat

- Executive Director and core team in place
- > $1 million raised

PPATS is supported by a nimble and lean Secretariat, hosted at Dalberg Catalyst

Dr. Nigel Sizer

Co-Founder and Executive Director, PPATS

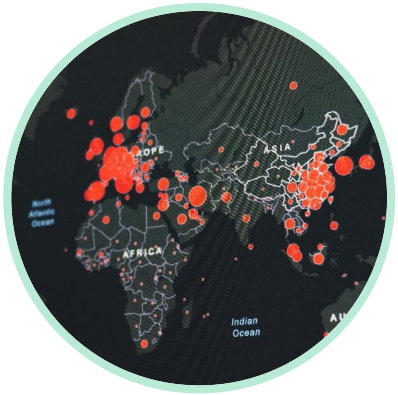
Sonila Cook

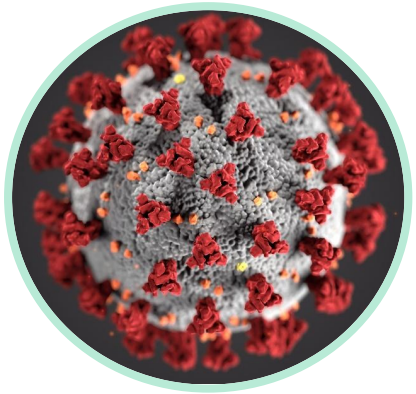
Co-Founder, PPATS
CEO, Dalberg Catalyst

Lina Dieudonné

Senior Program Associate, PPATS

Imagine it is 2025 and a mysterious disease with flu-like symptoms is emerging





We know where pandemics come from…

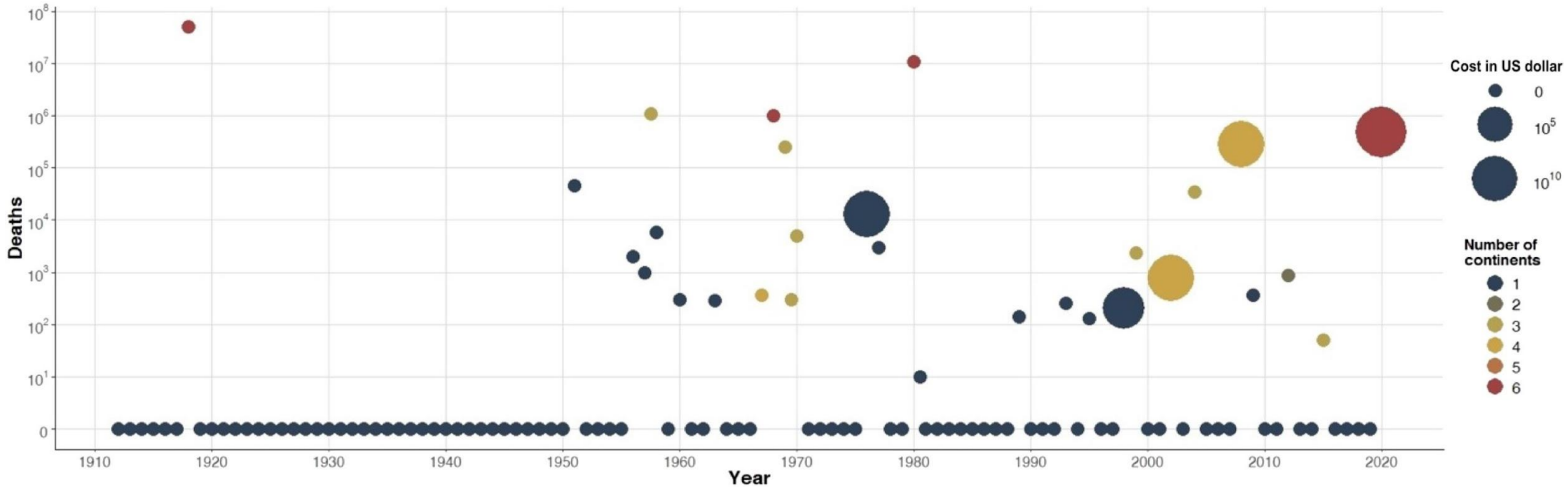
All **seven** viral pandemics since the Spanish flu of 1918[1], almost certainly including *COVID-19*[2], which together have killed over 100 million people, began with the **spillover** of viruses from animals, primarily wildlife, to humans. Spillover has three main drivers:

Scientists warned for years before COVID emerged of the risk of another viral pandemic caused by spillover, but were ignored

Sources: (1) *The costs and benefits of primary prevention of zoonotic pandemics,* (2) *The origins of SARS-CoV-2: A critical review*

…we know they are getting more likely…

Spillover events are happening at an **increasing rate**, and a higher proportion of them now lead to **larger outbreaks**. This implies that, as time goes on, pandemics are likely to happen more often and affect more people.



Deaths per year from novel viral zoonotic outbreaks since 1912

Source: *The costs and benefits of primary prevention of zoonotic pandemics*

…and we know they have huge costs

50 million additional people are likely to live **in extreme poverty** in 2030 due to COVID-19[1]

$28 trillion in estimated losses to the global economy over the next 5 years[2]

Over **14 million global excess deaths** associated with COVID-19[3]

47% of US healthcare workers plan to leave their jobs by 2025 due to burnout[4]

Current students risk losing **$17 trillion in lifetime earnings** due to learning losses[5]

Sources: (1) Long-run impacts of COVID-19 on extreme poverty, (2) Global Economic Effects of COVID-19, (3) Global excess deaths associated with COVID-19, (4) Clinician of the Future, (5) Learning Losses from COVID-19 Could Cost this Generation of Students Close to $17 Trillion in Lifetime Earnings

But we also know how pandemics can be prevented…

Evidence shows that we can stop pandemics before they start by reducing spillover through:

Shutting down or strictly regulating **wildlife trade** and markets

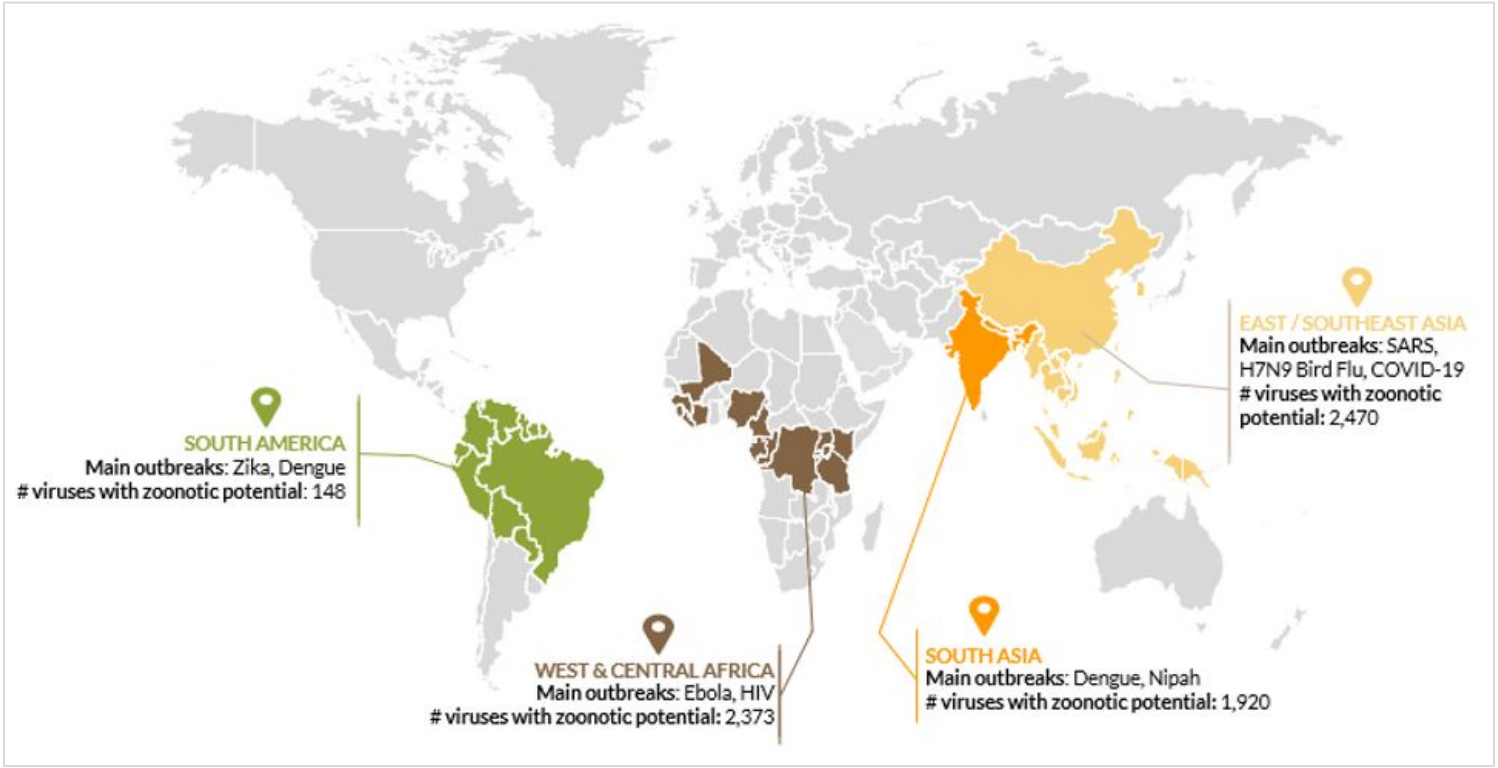
Stopping **deforestation** and forest degradation

Improving **livestock health**, strengthening veterinary care and biosecurity in animal husbandry

Providing **better healthcare** and **alternative livelihoods** to communities living close to wildlife in tropical regions

Enhancing **surveillance** for zoonotic viruses at interfaces between humans, domestic animals, and wildlife

…and we know where spillover is most likely to happen



Preventing spillover is highly cost-effective

New *peer reviewed analysis* on the cost effectiveness of prevention at the source:

- Annual cost of spillover prevention actions: ~$10-20 billion
- Annual cost of lives lost to emerging infectious diseases: $350 billion - $21 trillion
- Cost of COVID relief in the US alone (in ~2 years): $3.6 trillion

Spending 3% of the annualized cost of zoonosis on spillover prevention would make a major contribution to preventing future pandemics

SCIENCE ADVANCES | REVIEW

EPIDEMIOLOGY

The costs and benefits of primary prevention of zoonotic pandemics

Aaron S. Bernstein[1]*, Amy W. Ando[2,3], Ted Loch-Temzelides[4], Mariana M. Vale[5,6], Binbin V. Li[7,8], Hongying Li[9], Jonah Busch[10], Colin A. Chapman[11,12,13,14], Margaret Kinnaird[15], Katarzyna Nowak[16]†, Marcia C. Castro[17], Carlos Zambrana-Torrelio[9], Jorge A. Ahumada[10], Lingyun Xiao[18], Patrick Roehrdanz[10], Les Kaufman[19], Lee Hannah[10], Peter Daszak[9], Stuart L. Pimm[8]*, Andrew P. Dobson[20,21]*

The lives lost and economic costs of viral zoonotic pandemics have steadily increased over the past century. Prominent policymakers have promoted plans that argue the best ways to address future pandemic catastrophes should entail, "detecting and containing emerging zoonotic threats." In other words, we should take actions only after humans get sick. We sharply disagree. Humans have extensive contact with wildlife known to harbor vast numbers of viruses, many of which have not yet spilled into humans. We compute the annualized damages from emerging viral zoonoses. We explore three practical actions to minimize the impact of future pandemics: better surveillance of pathogen spillover and development of global databases of virus genomics and serology, better management of wildlife trade, and substantial reduction of deforestation. We find that these primary pandemic prevention actions cost less than 1/20th the value of lives lost each year to emerging viral zoonoses and have substantial cobenefits.

INTRODUCTION: PREVENTION, NOT JUST CURE

Leaders in public health, medicine, multilateral organizations, global health nonprofits, and many prominent policymakers have promoted plans that argue that the best ways to address future pandemic catastrophes should entail "detecting and containing emerging zoonotic threats (*1*)." In other words, we should take actions only after humans get sick. We sharply disagree.

As prominent examples of these approaches that consider solutions only after humans get sick, consider The Global Preparedness Monitoring Board, a joint initiative of the World Bank and the World Health Organization (WHO). This board is tasked with ensuring "preparedness for global health crises." Its *World in Disorder* report (September 2020) makes a strong plea to improve global health security that focuses heavily on vaccines, pharmaceuticals, and diagnostic tests (*2*). Preventing spillover is not mentioned. As another example, the G-20 formed a high-level panel on "Financing the Global Commons for Pandemic Preparedness and Response" tasked with "assessing the current financing systems and suggesting viable solutions for the longer term." In their progress note of April 2021, the panel clarifies that it only considers financing of post-spillover activities (*3*).

Much research shows that the spillover of viruses from animals to humans is the major source of pandemic risk (*4*, *5*). The coronavirus disease 2019 (COVID-19) pandemic most likely had its origins in a zoonotic event (*6*). Hence, the failure to consider minimizing spillover in influential conversations dedicated to preventing the next pandemic perplexes us. These reports hammer on the need to invest more in technology to diagnose, treat, and quickly vaccinate after diseases emerge. If the current pandemic has taught us anything, then it is that no amount of technology can save us from poor governance once an epidemic takes hold in the human population.

Here, we address the need for spillover prevention by evaluating the rate of novel zoonotic virus emergence over the past century. By "novel" we mean previously unknown. We quantify the annualized mortality and economic costs of emerging viruses. We then contrast this with the costs of what we define as primary pandemic prevention actions. We explain the value of better knowledge of viral diversity to primary prevention and then address the three main drivers of pathogen emergence: (i) wildlife trade and hunting, (ii) agricultural intensification and expansion, and (iii) destruction of tropical forests. We examine China's recent wildlife trade restrictions to reduce spillover risk from wild animal capture and trade. We then illustrate that slowing tropical deforestation is essential to prevention. Last, we note that enhanced wildlife veterinary capabilities are needed to improve spillover surveillance. We conclude that primary prevention costs a fraction of the cost of cures.

ZOONOTIC PANDEMICS ARE FREQUENT AND RISING IN COST

Frequency

The COVID-19 pandemic was predictable but not prevented. Novel viral outbreaks appear at an irregular but increasing rate (Fig. 1 and

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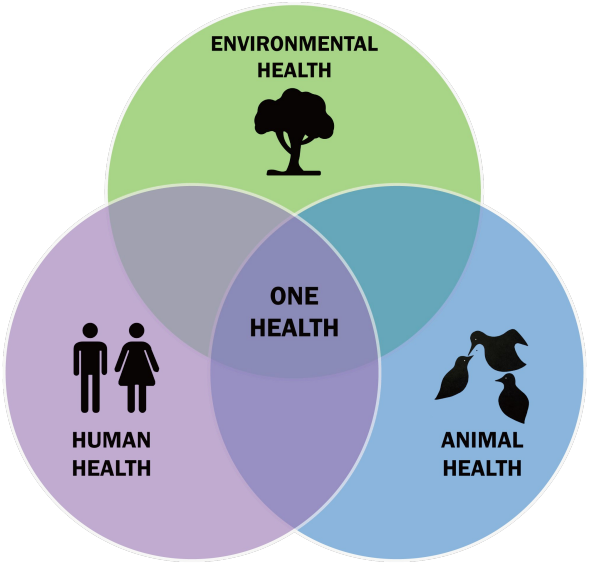
Actions needed to prevent spillover also mitigate climate change and biodiversity loss – it's a win-win-win strategy

Nature-based solutions are the most effective actions to prevent future pandemics and help address the **interconnected climate, biodiversity, and human wellbeing crises**.

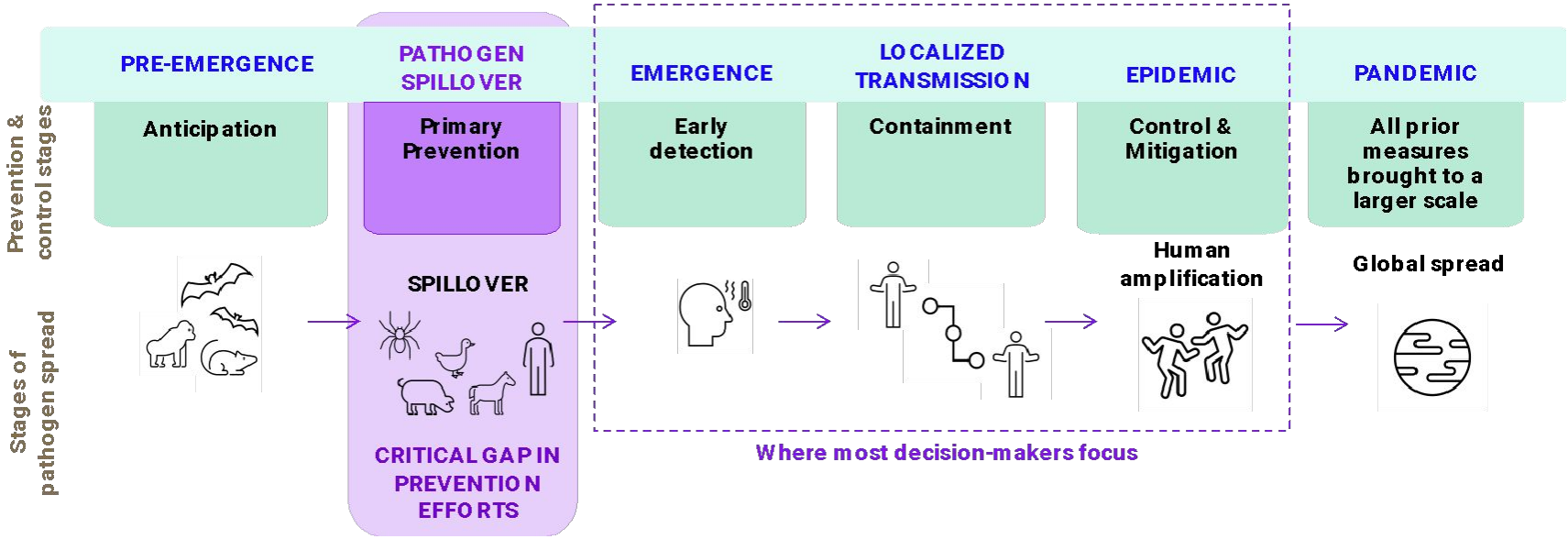
Every dollar spent on spillover prevention has multiple benefits for people and planet.

Protecting wildlife and tropical forests and improving animal agriculture are actions that **come with no regrets.**



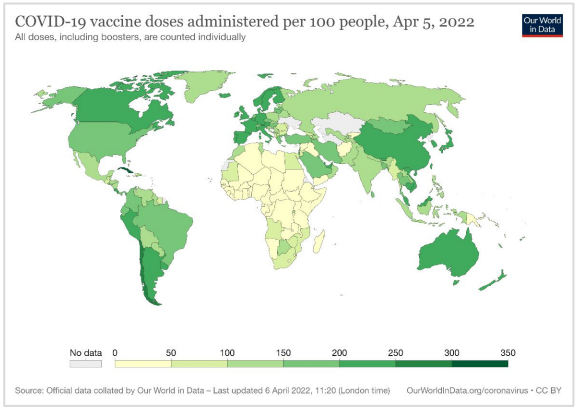
02 **The situation**

The world's current approach won't stop future pandemics – it merely attempts to slow the spread of pathogens

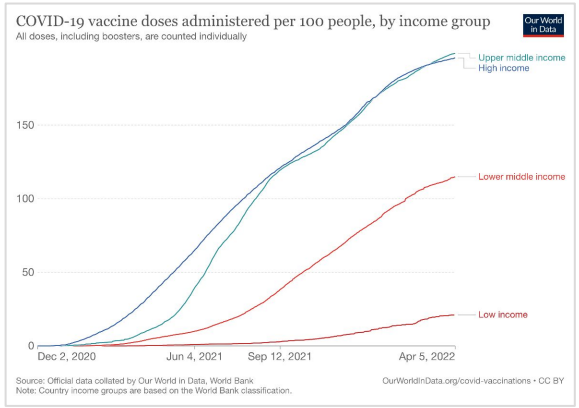


And it is grossly unfair to those least able to withstand the devastating impacts of pandemics

It favors wealthy countries…



… fails those most vulnerable…



… and hasn't worked for many in the rich world either

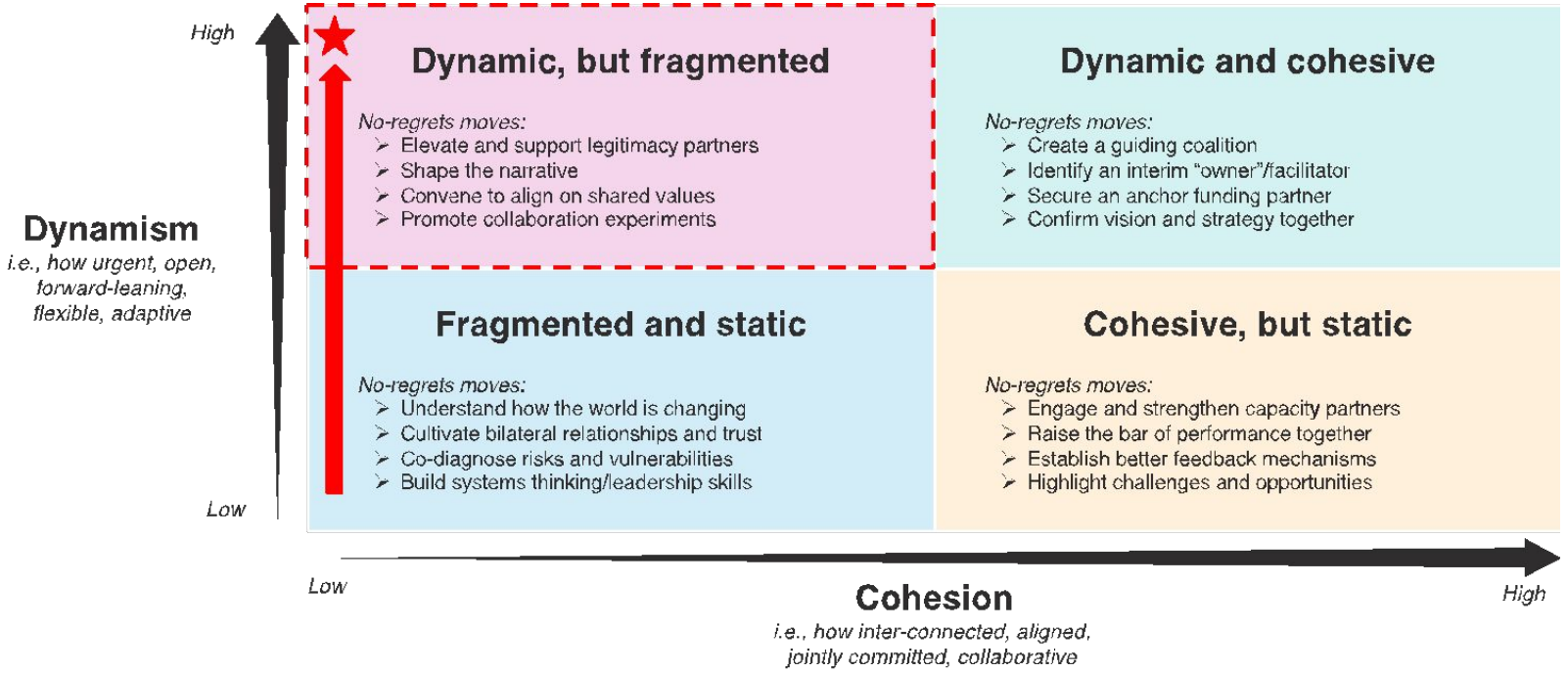
Our socio-economic system incentivizes governments and private actors to maintain the current, limited approach

Attributes of the current system and approach	Spillover prevention actions
Contributes to economic growth & profits	Can conflict with them, particularly in the short-term
Aligns with existing siloes / models of structuring governments and investors, as it is limited to the health sector	Requires cross sectoral collaboration, which many organizations are not set up to do
Produces short-term, visible, attributable results	Produces long-term results which are not easily attributable, creating challenges for governments and investors looking to show achievements

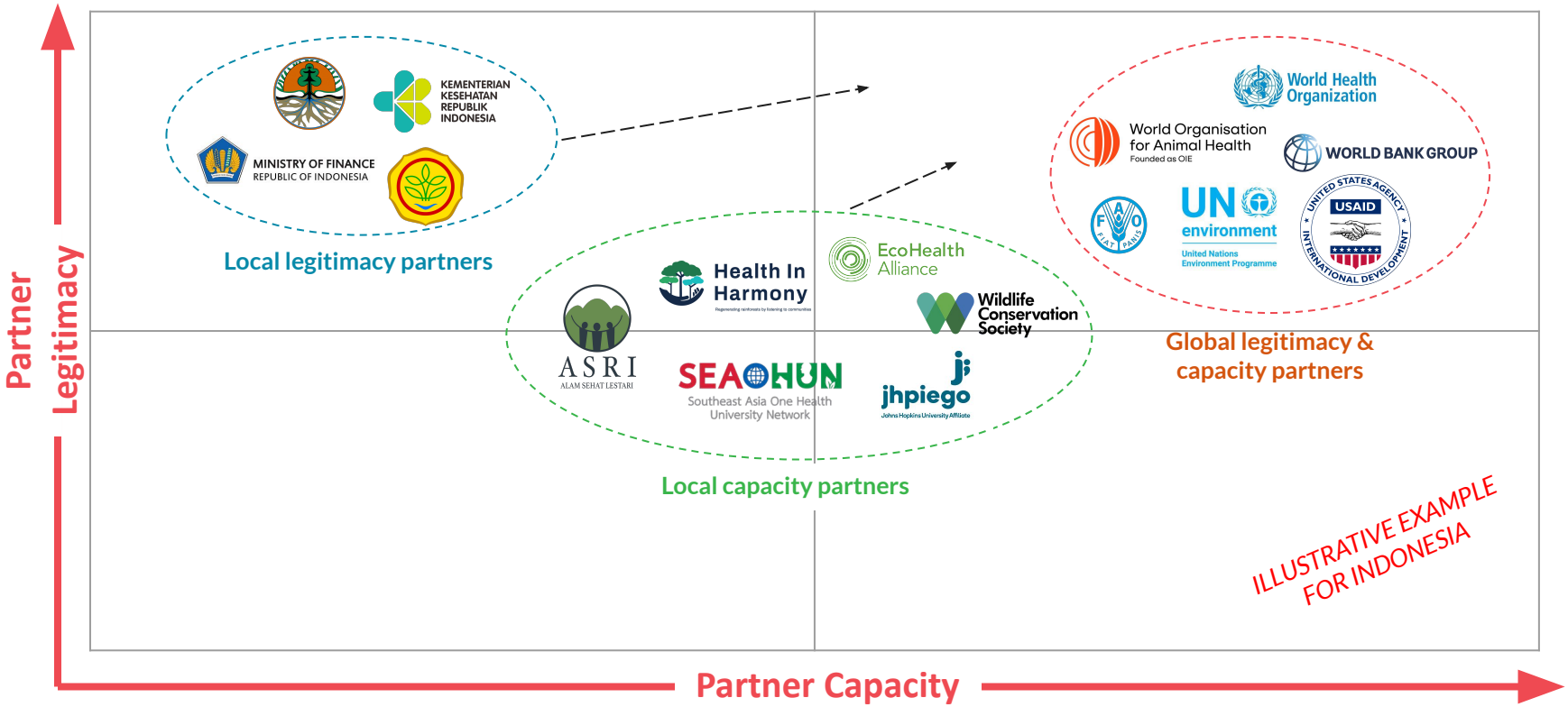
The limited resources currently allocated to pandemic prevention and the fading political attention also make actors in the space weary of expanding the scope of actions

This leads to a vicious cycle which hampers the shift to a more comprehensive approach to pandemic prevention

The pandemic has made the field more dynamic, but greater cohesion is needed for systems change



There is a diversity of actors in the field, with varying levels of capacity and legitimacy



Brainstorming exercise

What would you do to address this challenge?

03 Our systems change theory

Our strategy started emerging in the early conversations that led to PPATS' creation

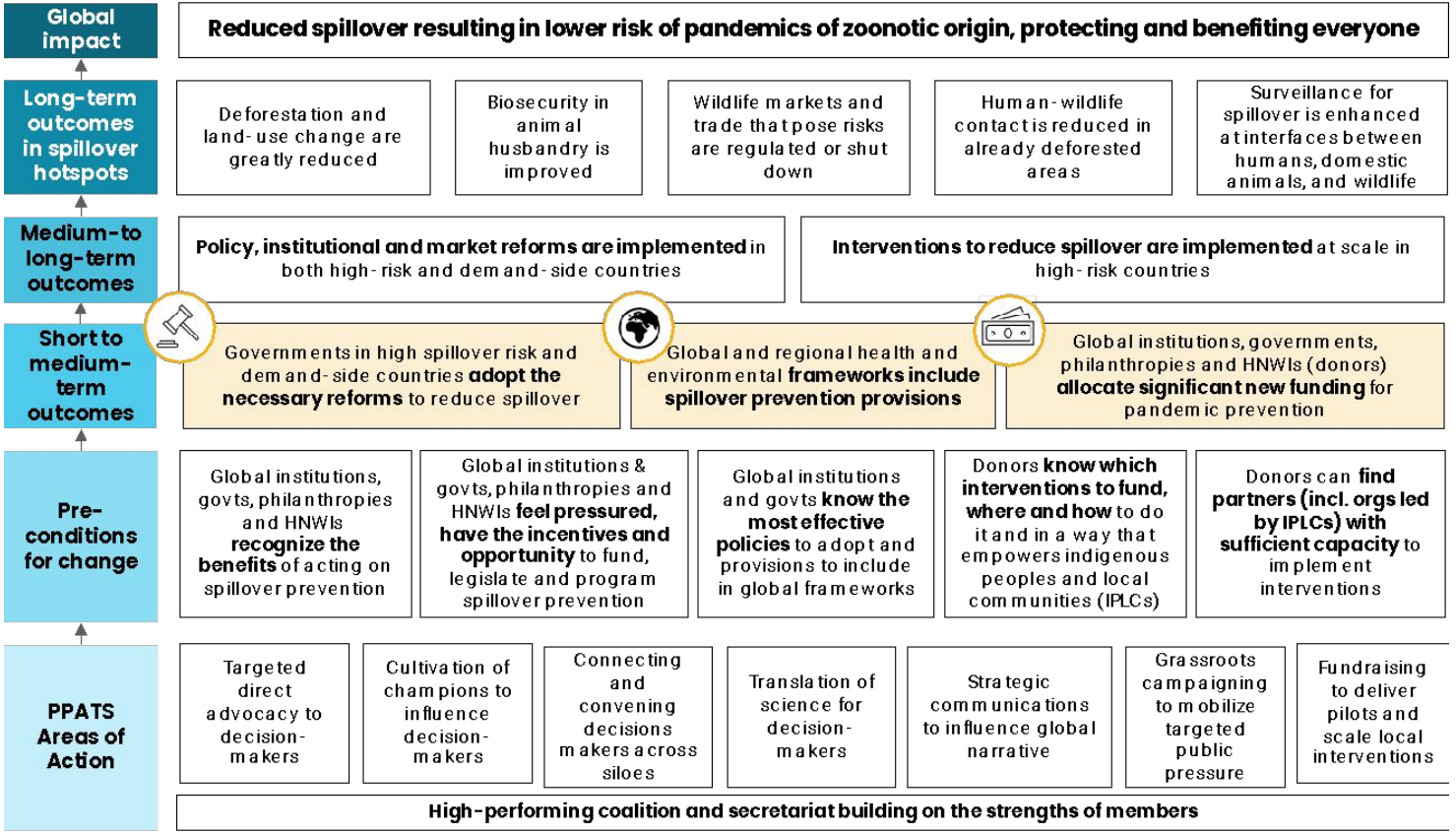
In summer 2020, our co-founders convened a group of prominent conservation and global health leaders to discuss how the global community could prevent pandemics at the source

COVID-19 pandemic spurred appetite for this work. Everyone was personally impacted and senior individuals from leading organizations agreed to work together. The PPATS coalition was born.

We quickly realized 3 main things were needed to spur a global shift in pandemic prevention efforts:

- Significant funding is catalyzed for spillover prevention
- Global frameworks are developed for coordinated, cross-sectoral actions
- Supportive reforms are adopted at national level

We then developed a more comprehensive theory of change



Over time, we have refined our strategy to focus on the most important points of leverage

Our strategic objectives

1. Key **G7 and other donor countries** prioritize spillover prevention in their funding, policy reforms, development programming and legislation
2. High **spillover-risk countries** implement and promote the necessary reforms
3. Priority **global and regional processes**, funds, and frameworks include spillover prevention
4. Influential private **funders** champion and fund spillover prevention

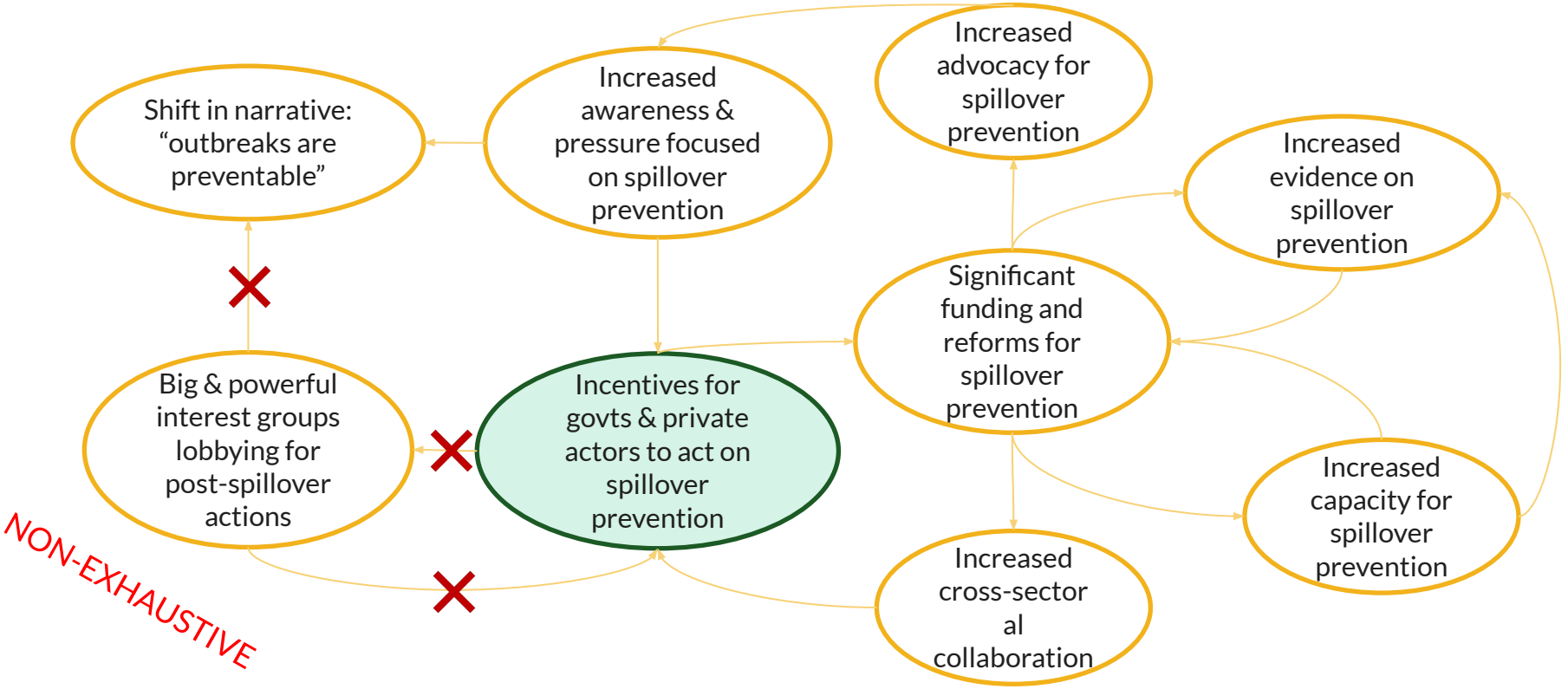
Outcomes

Significant funding for prevention galvanized

Global frameworks in place for coordinated, cross sectoral action

Supportive reforms and interventions enacted

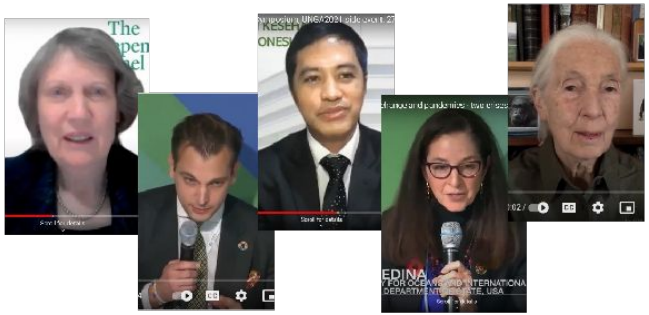
Through our work, we aim to reverse the vicious cycle and catalyze action on spillover prevention



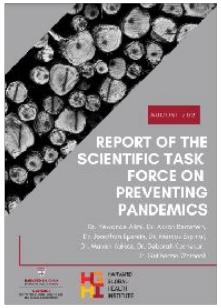
04 Our impact to date

We have impacted the global narrative on pandemic prevention and influenced high-level decision makers

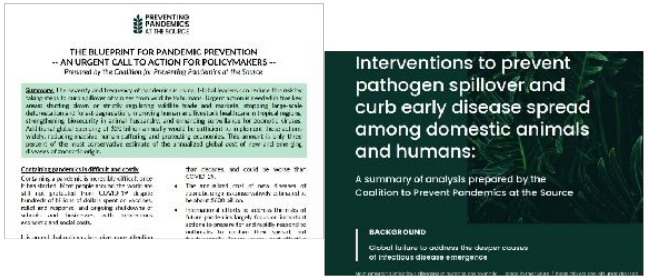
Ministerial Support & Network of Champions



Compelling Evidence Base



Clear Action Agenda



Influential Global Events & Wide Media Coverage

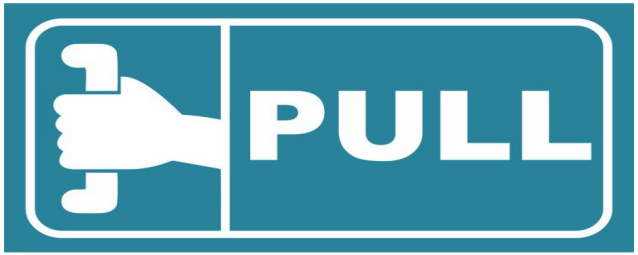
But we are still cultivating readiness for systems change

Momentum builders

- ☑ **Emerging evidence of need, impact, scale**
- ☐ *Good narrative, and effective storytelling and broadcasting*
- ☐ *Burgeoning field of key partners who are capable and engaged*
- ☑ **An interim "owner" (i.e., PPATS)**
- ☑ **Agility to quickly decide and/or pivot**

Windows of opportunity

- ☑ **Convergence of trends / burning platform (e.g., crises like COVID-19, mpox)**
- ☑ **Prospect of harnessing upcoming or recent galvanizing event**
- ☐ *Confidence in securing at least one—and ideally multiple—anchor funder(s)*
- ☐ *Near-term potential for demonstration and/or word-of-mouth effects*



05 **Lessons learned**

We've also learned a lot of valuable lessons along the way

- Coalition building is key to success, but it requires diverse participation, a "neutral" convener and an academic partner
- Recruiting champions is critical to build legitimacy and bring issues higher up the political agenda, even in the face of a crisis like the COVID-19 pandemic
- Staying lean and nimble is essential, rapid response and shifts are needed as context evolves and opportunities arise
- Strategic communications efforts are pivotal, a few quality articles can go a long way but it requires significant investment to do it consistently
- Virtual meetings can be tremendously helpful, but there are instances where in-person meetings are hard to replace
- Don't underestimate entrenched interests & "status quo bias"
- Funding for the Secretariat to convene and lead the coalition is crucial, but it is difficult to find unrestricted, core funding

05 **Q&A**