

# Life-Links for Resilient Supply Chains and Logistics

Framework for  
collaborative action

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Co-founded and in partnership with



# Supply chains at risk

- **Supply chains** are our lifelines: international trade represents 57% of global GDP
- **Everyone suffers** from disruptions, especially the most vulnerable
- **Climate change** is a growing threat with growing impacts



# Logistics systems are exposed (and no supply chain can function without it)



Destroyed roads and railways after floodings in Germany, 2021



Erratic rainfall and impassable roads in Uganda, repeatedly

- **27%** of global road and rail infrastructure is exposed to at least one natural hazard
- **86%** of ports are exposed to more than three natural hazards
- **1 dollar** in direct infrastructure damage, leads to **7.4 dollars** in wider economic losses



Drought affecting the Panama's canal capacity, 2024



Collapsed warehouse and casualties among staff after tornado in USA, 2021

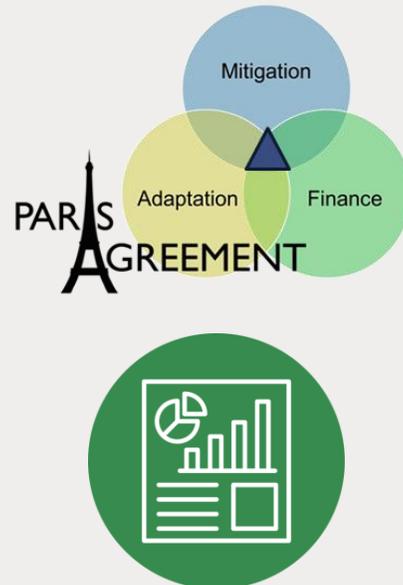
# Market failures

lead to reactive, localized, and isolated responses

Supply chains:  
complex,  
multifaceted,  
fragmented



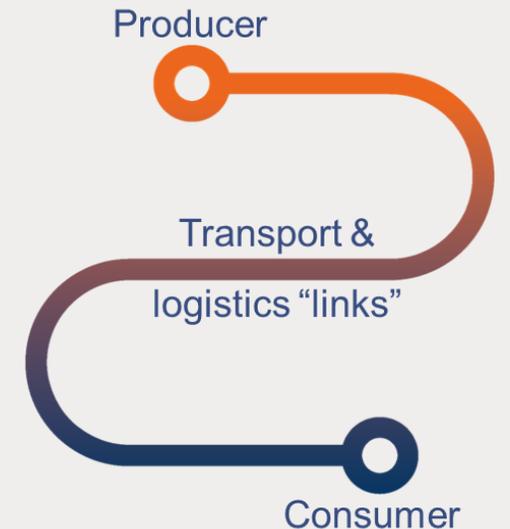
Shortcomings govt  
& companies:  
adaptation, supply  
chains and transport



Short-term mindset  
dominates political  
& economic systems



Weak connection  
consumers and  
producers



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**IMAGINE** if we could turn supply chains  
into a driver for climate action and  
local sustainable development?



Resilient supply  
chains for good

# Life-Links Framework

## for Resilient Supply Chains and Logistics



### **Multi-stakeholder partnerships**

co-develop and co-implement solutions



### **Critical transport links**

in global supply chains are strengthened and climate-compatible



### **Shared resilience & shared benefits**

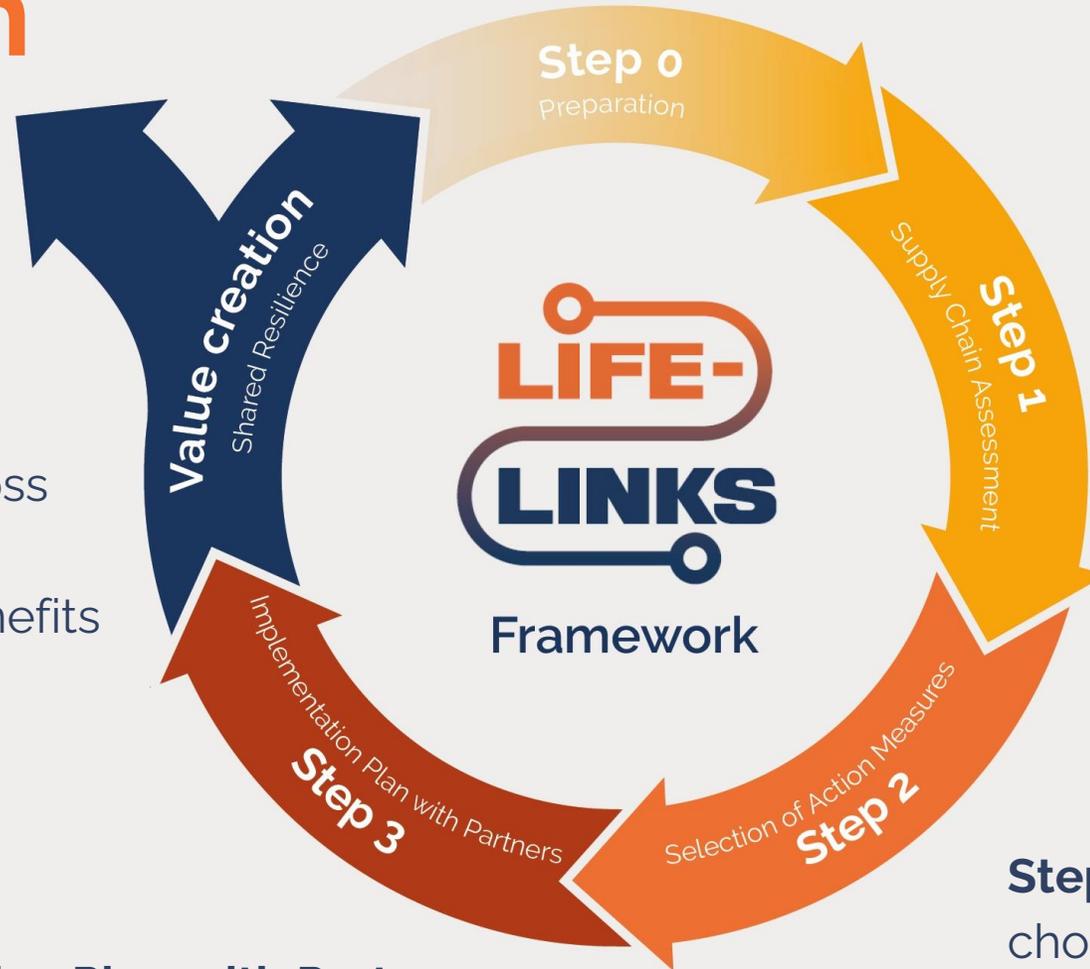
for supply-chain actors and local communities

Publication and  
online version:  
[www.life-links.org](http://www.life-links.org)



# Practical approach

**Step 0 – Preparation:** select supply chain(s), define critical link(s), identify stakeholders



**Step 1 – Supply Chain Assessment:** determine hazards X exposure X vulnerability = risks and impacts + how climate change makes it worse

**Step 2 – Selection of Action Measures:** choose a feasible, resilience-effective package (with mitigation/sustainability opportunities)

**Value creation:** shared resilience across supply chains and stakeholders + co-benefits

**Step 3 – Implementation Plan with Partners:** agree roles, finance and monitoring; launch as a partnership

# STEP 0. Preparation



- **Initiator's motivation determines supply chain, e.g.**



Company: secure continued access to coffee



Country: strengthen trade lanes with partner countries



Charitable foundation: protect livelihoods of garment factory workers

- **Focus on a “critical link” is more actionable**



- **Consider all stakeholders** for stronger partnerships later



0.1 Select the supply chain(s)

0.2 Map the supply chain and define critical links

0.3 Identify stakeholders and key actors with shared interests

# STEP 1. Supply Chain Assessment



**1.1 Identify key hazards and characterize exposure**

**1.2 Assess existing logistics challenges and impact**

**1.3 Assess exacerbating effects from climate change**



- **Focus on existing logistics challenges** (is more practical for stakeholders)



## Logistics challenges

- Infrastructure
- Operations
- Workforce
- Flows (goods, finance, info/data)

# STEP 2. Selection of Action Measures



2.1 Identify and pre-select action measures that build resilience

2.2 Assess feasibility and effectiveness for resilience

2.3 Add safeguards, decarbonization and sustainability opportunities

- **Prioritize strengthening the supply chain** (not just working around the risk)



## Examples:

- Reposition assets from high-risk locations
- Near-sourcing
- Reduce workforce deployment in hazard zones



## Examples:

- Upgrading existing infra
- Multimodal integration within corridors
- Flexible work hours to avoid high-risk time



## Examples:

- Spare critical equipment
- Raise inventory levels
- Dynamic routing & emergency scheduling
- Early warning systems

# STEP 3. Implementation Plan with Partners



- 3.1 Commit to a package of action measures
- 3.2 Agree collaboration, financing and monitoring
- 3.3 Launch and communicate the plan as partners

- **Allow for flexible collaboration** (so partners can commit per measure)

<b>Isolated Action</b> 	<b>Coordinated Action</b> 	<b>Collective Investment</b> 
Individual actors take action measures alone	Partners coordinate around one or across multiple action measures, without financial transfers	Partners pool or unlock finance for action measures through co-funding, guarantees, or risk-sharing, including through PPPs
<i>Example:</i> a warehouse installs flood barriers without coordination with transport operators	<i>Example:</i> a regional trade corridor platform invites private firms to time their logistics upgrades with donor-supported infrastructure works	<i>Example:</i> a retailer provides a product offtake guarantee, enabling a producers' cooperative to secure a bank loan for a new packhouse

# Value Creation: Shared Resilience & Benefits



## Supply Chain Resilience

Logistics system

Goods / Products

## Stakeholder Resilience

Communities

Countries

Companies

Consumers

Other stakeholders

Triple Dividend of Resilience dimensions

1. Avoid losses

2. Induced economic benefits

3. Social and environmental benefits

# Value Creation: Shared Resilience



- **Critical link:** East-West Railway line Azerbaijan in the Middle Corridor
- **Partnership:** Azerbaijan Railways (govt), Asian Development Bank (dev't), Alstom (company)
- **Actions:** Electric network upgrade + 40 modern electric freight locomotives + partial renewable electricity
- **Resilience & shared benefits:**

## 1. Avoided losses

- Reduced failures of locomotives (availability increased from 70% to 90%), operations and the electricity network

## 2. Induced economic benefits

- Reduced travel time (the speed doubled from about 20 to 40km/hr)
- Lower maintenance costs, improved energy efficiency
- Higher transit and trade revenues for Azerbaijan
- More reliable services for shippers
- Increased freight volumes (800,000 tonnes 2020 > 4.5 million tonnes 2024)

## 3. Social and environmental benefits

- Better working conditions for drivers
- Reduced emissions and cleaner air
- Income resilience for workers and communities

# About Life-Links



- **Global non-profit organization**  
co-founded by Sophie Punte and Kuehne Climate Center
- **Vision:** Resilient supply chains for good.
- **Mission:** Work with partners to make critical transport links in supply chains more resilient against climate change and other threats, for the benefit of all stakeholders.
- **Three strategies/objectives:**



# Life-Links Framework: next steps



Workshop or presentation on the Life-Links Framework



Application to a priority or vulnerable supply chain



Integration into a project, programme or fund



Stakeholder dialogue around a critical link



Development of resilience actions



Research on resilience and shared benefits

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- Download the Life-Links Framework
- Follow us on LinkedIn
- Approach us for next steps

[www.life-links.org](http://www.life-links.org)

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