Resilience
AI

Resilience AI started with Cyclone Yaas, which was a setback for People, Profit and Planet. Climate scenario based early warning, climate action plans, relief and recovery funding are conventional drills. This drill, however, doesn't prepare Earth's companies and governments.

The cost of inaction is at least 5X of the cost of proactive action.

Resilience360 is the **first climate enterprise software** that prepares business and governments for climate risk as a lifecycle and not in silos.

Vision

Building Resilience at every step

Mission

The mission is to prepare and protect the 60% unaccounted business, assets, lives in climate crisis.

Why Resilience360?

- Natural disasters have **almost doubled** in the last decade, whereby, **71%** of such climate events are **more likely or severe**

- Global disaster loss in 2023 stands at **US$250 billion** and closer to home in India, we faced **US$ 34 billion losses** from 2018-22

- India potentially suffered an **income loss of US$ 159 billion** (5.4% of GDP) in service, manufacturing, agriculture, and construction sectors due to climate events in 2021

- While Earth will have 16–24% increase in heavy precipitation intensity by 2100, it remains unknown that **3200 flood incidents** have occurred worldwide

- During earthquakes, collapsing structures are responsible for **80% of casualties** (UNESCO)

- Even with the best case scenario , we are looking at these events to multiply and intensify (ex - 1.5º scenario will lead to **US$ 2,400 billion** in estimated **productivity related losses due to heat stress** as per ILO)

- Expected annual losses in the **built environment is ~70% of the total losses**. Most banks rely on assumptions around property characteristics and academic studies of historic events, without information about how buildings they finance are constructed.

- Annually, there is a **need to invest USD$ 2 trillion** towards adaptation measures

Demos conducted

Near-committment orders

10+
Team Size (Employees)

100+
Network of Fellows

Footprint and Impact

15+
Paid Pilots

**30+**
Cities where model has
been run

Resilience360

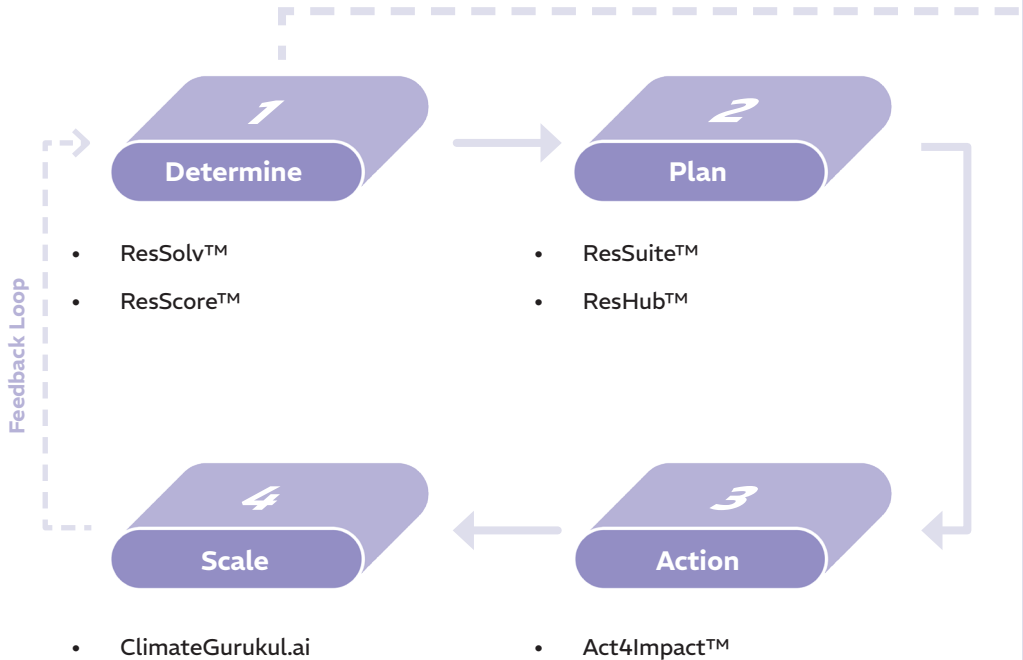**Climate risk measurement and management solution**

Resilience360 is a B2B, AI-based physical climate risk lifecycle management solution developed by a team of urban planners, AI engineers and climate-risk specialists.

As climate change becomes more apparent and climate risk regulations become stricter, we are building a solution which leverages on-ground knowledge to build a reliable risk profile, while providing actionable interventions towards climate resilience at every step.

Resilience360 is solving climate adaptation at the intersection of 50 years of climate event and disaster response data, ground-truthed intelligence from 26 climate events and software enterprise architecture.
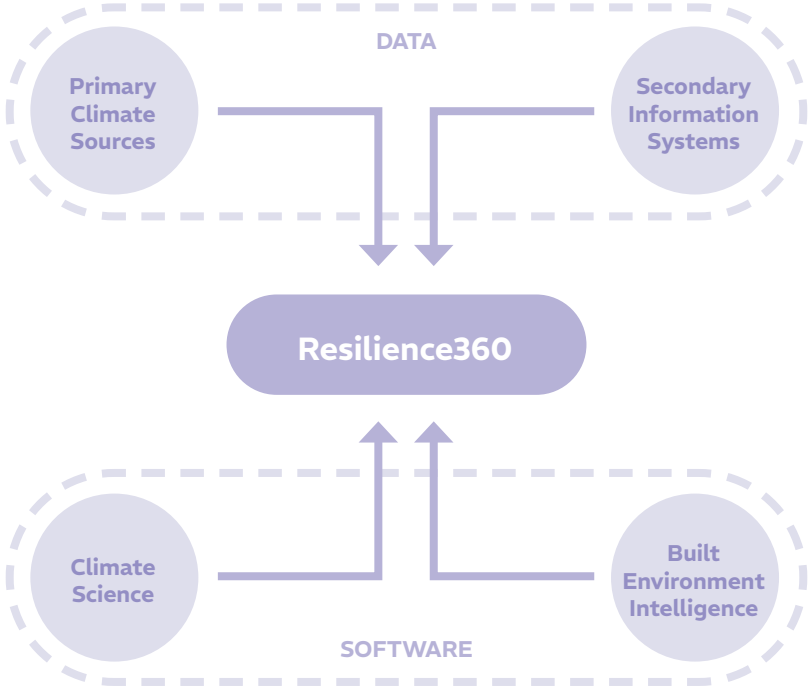
The four services of the Resilience 360 enterprise software are Determine, Plan, Action and Scale

Feedback Loop

1

Determine

- ResSolv™
- ResScore™

2

Plan

- ResSuite™
- ResHub™

4

Scale

- ClimateGurukul.ai

3

Action

- Act4Impact™

ResSolv™

ResSolv is a climate-risk determination module, which uses three decades of roof-top architecture, built environment, artifical intelligence (AI) and Machine Learning based classification.
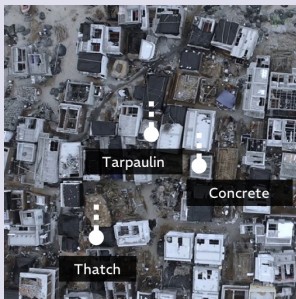
20+
Factors applied using Machine Learning

25+
Realtime climate events

415k+
Verified building risk data

>90%
Confidence

<72 hr
Run-Time

Tarpaulin

Concrete

Thatch

Every roof is a unique fingerprint ...

Disaster Type: Cyclone

Number of Buildings: 2,709

Total Area: 0.12 sq. km

Risk Category	No of Buildings
Very Low Risk	0
Low Risk	0
Medium Risk	84
High Risk	2,151
Very High Risk	474

01:36.85

... which translates to every building's unique climate risk profile

ResSuite™

ResSuite™, is a Generative AI based report of analytics, which covers climate risk diagnosis (root cause analysis), biodiversity atlas, value at risk, composite

Digital Elevation Model

TWI
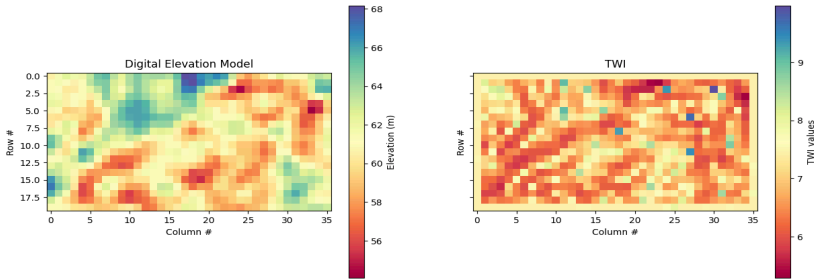
Key Vulnerabilities Analysis

Flood Risk:

1. High-Risk Buildings: There are more than 550 buildings categorised as high-risk for floods, indicating areas prone to severe inundation. These buildings are particularly vulnerable to flooding events and may require immediate attention for mitigation measures.
2. Moderate-Risk Buildings: With more than 17,000 buildings classified as moderate-risk, there is a significant portion of infrastructure susceptible to flood damage. These areas may experience moderate inundation during flood events, highlighting the need for targeted interventions to reduce vulnerability.
3. Low-Risk Buildings: While there are more than 9,000 buildings categorized as low-risk, they are still susceptible to flooding to some extent. Although the risk is lower compared to moderate and high-risk areas, measures should be taken to strengthen resilience and preparedness.

Earthquake Risk:

1. High-Risk Buildings: A total of more than 160 buildings are identified as high-risk for earthquakes, indicating areas prone to significant structural damage and collapse during seismic events. These buildings require urgent attention for retrofitting and structural reinforcement to mitigate the risk of casualties and property damage.
2. Moderate-Risk Buildings: With more than 5,000 buildings classified as moderate-risk, there is a substantial portion of infrastructure vulnerable to earthquake hazards. While the risk is lower compared to high-risk areas, these buildings still require targeted interventions to enhance their seismic resilience.
3. Low-Risk Buildings: Although more than 3,000 buildings are categorized as low-risk, they are still susceptible to earthquake damage. While the risk is relatively lower compared to moderate and high risk areas, proactive measures should be taken to enhance structural integrity and resilience.

Overall Vulnerabilities

- Concentration of Vulnerable Buildings: The concentration of high and moderate-risk buildings underscores the need for targeted interventions in specific areas prone to flood and earthquake hazards. Prioritising these areas for mitigation efforts can effectively reduce overall vulnerability along the railway line.
- Critical Infrastructure at Risk: Critical infrastructure such as railway stations, bridges, and tracks may also be vulnerable to flood and earthquake risks. Protecting and strengthening these assets is essential for ensuring the continuity and safety of railway operations during disaster events.
- Community Resilience: Enhancing community resilience through education, early warning systems, and evacuation planning is crucial for minimising the impact of floods and earthquakes. Engaging local communities in disaster preparedness and response efforts can significantly reduce vulnerabilities and enhance overall resilience.

By addressing these key vulnerabilities identified through the risk assessment model, the Konkan Railway Corporation Limited can effectively mitigate flood and earthquake risks along its railway line, ensuring the safety and resilience of its infrastructure and operations.

8 centres of a global Sports and Athleisure entity						
			FLASH FLOOD		**HEATWAVE**	
City	**Location**	**Buildings (Nos.)**	**Score**	**Risk %**	**Score**	**Risk %**
Ahmedabad	Location #1	348	5	99	4	54
	Location #2	2696	5	97	4	36
Bengaluru	Location #3	2654	4	57	4	20
	Location #4	912	5	92	4	9
Delhi NCR	Location #5	506	5	99	4	73
Punjab	Location #6	742	5	98	4	49
Chennai	Location #7	2634	5	78	2	1
	Location #8	2001	5	93	2	0.5

ResScore™

ResScore™ is an index, which evaluates climate resilience, covering both sustainability and climate related risks based on **6 pillars**

Institutionalized baseline assessment for companies intersecting across standards and frameworks

ESG | SOCIAL GOVERNANCE GUARDIANS

SENDAI FRAMEWORK
FOR DISASTER RISK REDUCTION 2015-2030

IPCC | INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

Digitised for ease of adoption

Using hyperlocal database, it acts as a starting point to assess climate preparedness at an organization level with insights from **55+ vulnerability parameters**

Strategy	Social
Physical	Environment
Economic	Crisis

USBRL

The Konkan Railway Corporation Limited (KRCL) and Resilience AI worked together to draft a disaster risk report for the Udhampur-Srinagar-Baramulla Railway Link (USBRL), a railway line of national importance that is built in a geographically challenging region.

OPPORTUNITY The USBRL is a vital transportation link in J&K and faces constant threats from natural disasters, posing significant risk to the railway line's infrastructure, stations, and surrounding communities.

SOLUTION Our AI-enabled tool, ResSolv, was run to utilize high-resolution satellite imagery, meteorological data, & other relevant parameters to assess vulnerabilities within a 1 km buffer zone around each of the railway stations.

IMPACT
1. Prioritized Risk Mitigation
2. Infrastructure Protection
3. Data-driven Decision Making

2 years

360º climate planning timespan

13.5 hours

Projected runtime from pilot order initiation

" The ResSolv AI model empowers organizations to understand and proactively address potential risks, thereby enhancing the operational reliability of the USBRL in particular and the Indian Railways in general. "
Konkan Railway Corporation Limited

Vivekananda Camp

The Chintan Environmental Research and Action Group worked closely with Resilience AI to deploy innovative solutions at the climate-health nexus, particularly in implementing AI models for assessing heatwave impacts on vulnerable communities in Vivekanand Camp, Delhi.

OPPORTUNITY Hyper-local heat disparity. Low-income, highly dense areas such as Vivekanand Camp are up to 6° C hotter than the rest of the city.

SOLUTION AI for Extreme Weather - Resilience used the AI-generated maps to find high-risk homes, prioritize outreach for early warning and preparation, and demonstrate the significance of heat risks to locals.

IMPACT Once at-risk households were identified, the team began outreach to prepare for the upcoming heatwave and implement solutions. Cool roof prototypes were fabricated and tested, with one model resulting in 12ºC lower indoor temperatures.

3 years

Product development timespan

5 hours

Projected runtime from pilot order initiation

" It is true that the repercussions for heatwaves are long felt and there is pressing need for AI tools such as ResSolv to help understand the hyperlocal risks of communities. "
Bharti Chaturvedi
Director, Chintan Environmental Research and Action Group

Gaya

15kms from Gaya

Bodh Gaya

" BSDMA is the first SDMA to leverage an AI-based tool as part of a CDMP for the assessment of socio-economic vulnerability & risk at a hyper-local, building level. "
Bihar State Disaster Management Authority

Gaya CDMP

Resilience AI was engaged by the Bihar State Disaster Management Authority (BSDMA) to contribute to the City Disaster Management Plans (CDMP) for Gaya, an important tourist city in Bihar.

OPPORTUNITY Traditional disaster response mechanisms lack precision in identifying hyper-local risk zones, leading to generic alerts and inefficient evacuation plans. This results in longer recovery times and greater disruptions.

SOLUTION Resilience AI team worked with BSDMA to leverage ResSolv in the preparation of the Gaya City Disaster Management Plan. Advantages include enhanced Early Warning Systems (EWS) and optimized resource allocation, evacuation & recovery planning.

IMPACT The focal point of this output was the creation of a modern-day CDMP that works to reduce disaster risks at a household level, through a synergistic integration of advanced technologies and community-centric approaches.

2 years

360° climate
planning
timespan

48 hours

Projected runtime
from pilot order
initiation

Founders Story

Resilience AI was officially incorporated in November 2023.

Samhita is from the northeastern belt of India, which experiences significant loss of assets and livelihood every year due to floods. "While nature may be seasonally unkind, resilience doesn't need to be seasonal. Climate resilience should be a 365-day conversation." She co-founded Resilience AI with the aim of building climate resilience with technology.

Sundeep is a 5th generation farmer. Agriculture faces inevitable losses due to climate change. Over 18 years he has set up Climate and ESG business units and Data science centre of excellence to give future generations a fighting chance with nextGen climate solutions

Dr. Anshu and Dr. Manu are urban planners serving dignity in disaster globally for 30 years. They have been awarded the United Nation Sasakawa Award and the Subhas Chandra Bose Aapda Prabandhan Puraskar by the Government of India for building resilience in communities exposed to disasters and climate change impact.

Together, we aim to provide goverments, climate agencies and private corporations with credible and co-owned intelligence to build their resilience to clmate-induced events.

Resilience AI