About us

STS is a techno-environment catalyst that enables end to end humanitarian interventions at scale and makes them accessible to the last mile citizen.

We are building and empowering resilient communities beyond boundaries through our flagship sustainable shelter design program.

Disaster & Climate Advisory
Cross-sectoral strategic advisory support through market insights driven by our experience in climate change adaptation and disaster risk reduction.

Assessment & Planning
We develop both hazard-specific and multi-hazard plans. Our approach is participatory, working with the broad range of stakeholders involved.

Knowledge & Capacity Building
Training needs assessment, developing customised sustainability content such as training modules and providing training and capacity building.

Sustainable Habitat Design
We specialise in the design, construction, and retro-fitment of sustainable, affordable, and resilient habitat solutions.

Humanitarian Innovation Solutions
Assisting grassroots innovators in the disaster and climate risk management domain with incubation and acceleration support.

Established in 2009, we provide community-centric, scalable, and tailor-made transformative solutions to climate-induced risks and disasters.
Our footprint & impact

Team Size (Employees) 15+
Team Size (Fellows) 100+
Projects Delivered 90+
Customers Delivered 60+
Innovations Accelerated 20
Geographies Impacted 10

Thematic Distribution

- Disaster and Climate Advisory
- Assessment and Planning
- Knowledge and Capacity Building
- Sustainable Habitat Design
- Humanitarian Innovation Solutions

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Extreme temperature events have become a stark reality

Areas experiencing record heat over the past 10 years

2013

Share of world experiencing record heat

39.8%

The number of people experiencing all-time record heat is sharply increasing

Source: Carbon Brief

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Heat waves, alone, led to USD 30 trillion loss over a decade

**UNITED STATES**
Damage from Heatwaves in the U.S from 2010-20 Decadal

- **$8.4 Billion dollars**
- **10.2 Million Affected**
- **272 Deaths**

**INDIA**
Damage from Heatwaves in India, from 2010-20 Decadal

- **$0.9 Billion dollars**
- **7.8 Million Affected**
- **106 Deaths**

**VIETNAM**
Damage from Heatwaves in Vietnam from 2010-20 Decadal

- **$0.9 Billion dollars**
- **75.6 Million Affected**
- **87 Deaths**

**ITALY**
Damage from Heatwaves in the Italy from 2010-20 Decadal

- **$0.1 Billion dollars**
- **109 Thousand Affected**
- **13 Deaths**

**CHINA**
Damage from Heatwaves in China from 2010-20 Decadal

- **$0.2 Billion dollars**
- **87.2 Million Affected**
- **42 Deaths**

**PHILIPPINES**
Damage from Heatwaves in the Philippines from 2010-20 Decadal

- **$0.1 Billion dollars**
- **23.7 Thousand Affected**
- **332 Deaths**

Source: [https://ourworldindata.org/natural-disasters](https://ourworldindata.org/natural-disasters) EM-DAT (Emergency Events Database)

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Beyond inducing disasters, extreme heat has second degree impacts

- **Heat related illness**
  - Strokes
  - Exhaustion and cramps
  - **Children and Worker health** most severely impacted

- **Equipment damage**
  - Computers and associated equipment vulnerable to humid environments
  - Industrial machinery impacted
  - Reduced output

- **Energy**
  - Increasing need for cooling homes and other buildings
  - Higher energy and emissions further aggravates temperatures

- **Agriculture**
  - Reduction in crop yields
  - Impact on livestock

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Think of the socio-economic loss

if it expands beyond heat...
if we consider beyond boundaries..
We continue to react to climate induced risks

**Loss** incurred due to climate induced disasters has increased significantly

**Risk Profile** unique to a property remains unknown

**Reactive planning** miscalculates the loss of lives and property

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Could there be a proactive, accountable, automated readiness system?

ResSolv™ is an AI based resilience platform where users can access their unique risk profiles & action preparedness and mitigation.

**Estimate** potential loss using rooftop-based risk profile

**Build** hyper local risk profile database

**Deploy** actionable plan and monitoring system

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ResSolv™ uses three decades of roof-top architecture know-how and AI based classification

Every roof is a unique fingerprint...

... which translates to every building with a unique climate risk profile

Roofs are a proxy for estimating how vulnerable a building is, with hyper-local knowledge of who lives inside and their socio-economic condition
... with precision led risk scoring for every structure

**Building Detection Modelling**  **Roof Type Classification**  **Hazard Risk Score Algorithm**

- From high resolution satellite imagery
- Through machine learning
- Risk assessment at 30m resolution

- Floods and Cyclone
- Earthquakes
- Heatwaves

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... and advances beyond conventional models to provide a multi-hazard, scalable, spatial agnostic solution

- **AI trained engine**
- **Scalable**
- **Building level hazard risk assessment**
- **Data driven decision-making**

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Besides adaptation, ResSolv™ helps administrators and communities to respond and recover

### Proactive alert mechanism

- **Met department alert**
- **Anticipation mechanism**
- **Visualization of risk zones (hotspots) in a dashboard** using AI technology & rooftop classification
- **Incident Command System (ICS) for disaster response**

### Action plan - disaster strikes

- **High risk zone (hotspot) SOP plans in first phase**
  1) By departments
    - State level
    - District level
    - City level
  2) By sector
    - Agriculture
    - Rural
    - Urban & Housing

- **Action oriented SOP deployment & monitoring**

### Continuous engagement

- **AI-model backed implementation - iterative dashboard**
- **Disaster ME&I report** (including policy inclusion recommendation)
- **Structural interventions** (retrofit and / or new building prototype)
- **Community intervention** (community based early warning system, skilling)
- **Inclusive workshops with community level partners** for tech-enabled disaster response

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1. Monitoring, Evaluation & Impact

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Through ResSolv™, we build an eco-system to address heat

- Financing partners: Insurance, Bank & Micro-finance
- Relief partners: Not for profit, Grassroot partners, Infrastructure, Healthcare, Others
- Emergency warriors: Humanitarian specialists, Developers, Planners
- Critical infrastructure: Factories, Warehouse, Manufacturing plants, Power plants, Mining units
- Government: National, State, District, City, Panchayat
- Policy: Think Tank, National and International bodies
- Critical infrastructure: Premise (indoor and outdoor) risk assessment
- Greenfield set-up decisions
- Employee health safety guidelines
- Heat resilient structural interventions (low-cost insulation, circular methodology, nature-based solution)

• Heat hotspots (high and medium risk zones)
• Heatwave Response plan
• Threat and hazard identification
• Innovative localized solutioning
Co-built by techno-environment engineers and spatial planners

Dr. Anshu
Co-Founder
Res Solv Author
Disaster, Dignity, Digital

Shradha
Product & Finance |
Evalueserve, Abbott

Dr. Manu
Co-Founder
Ashoka Fellow

Ankit
Strategy | IITD, ISB |
McKinsey, Flipkart

Akshay
AI Scholar
Professional
Entrepreneur | Microsoft

Jubin
Sustainability Architect,
Social impact | SPA Delhi,
TERI | DOT Glasses, SEEDS

Samhita
Board of Director
ISB | Microsoft, Honeywell, EY

10+
Product & innovation team

Jan 2023
Satya Nadella’s note about the AI model SEEDS has built

Jul 2021
Microsoft along with SEEDS launch 2nd phase of AI model to predict heat waves risks in India

Sep 2022
AI model breaks down disaster warnings from a general area to the individual home level.

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Market validation for India

- Temperature increase by 2100 would impact 94% of GDP and 89% of population.
- Investment required for adaptation, mitigation & management of weather-related disasters by 2050.
- Total losses due to catastrophe remain uninsured.
- Average uninsured loss per natural catastrophe.

$7 - $12 Trillion

$132 - $224 billion

85%

$2 billion

Trends in Adaptation Planning in India (1)

Have Climate Adaptation Plan
Assessed Physical Climate risks

Real Estate
Utilities
Consumer staples
Materials
Information Technology
Energy
Healthcare
Communication services
Financials
Industrials
Consumer Discretionary

(1) Data compiled May 18, 2023; source: S&P Global Corporate Sustainability Assessment

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Heat and health

CLIMATE DRIVERS
- More frequent elevated temperatures
- Prolonged heat waves
- Seasonal timing of event

ENVIRONMENTAL & INSTITUTIONAL CONTEXT
- City planning: Urban heat island effect
- Access to support services & resources (electricity, water, cooling centers)

EXPOSURE PATHWAYS
- Exposure to elevated temperatures (daily maximum, minimum, and mean)
- Combined impact of temperature, humidity, wind, & sunlight

SOCIAL & BEHAVIORAL CONTEXT
- Social isolation, poverty, and homelessness
- Access to & use of air conditioning
- Outdoor work, recreation, and commuting
- Appropriate heat prevention messaging
- Chronic illness, medication use, or personal, physical, & cognitive constraints

HEALTH OUTCOMES
- Deaths, illness, hospital and emergency department visits

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