Leveraging Technology for a Resilient Tomorrow: Driving scalable impact and addressing systemic inequities

RHPW 2024

Lack of intersectional dialogue between climate change and disaster risk reduction

Today, most countries, including India do not see convergence of their Climate Change plans with Disaster Risk Reduction and hence, lacking overarching national or state level policies that can equip communities to mitigate, adapt and sustain frequent occurrences of disasters and changing weather patterns.

Lack of comprehensive economic loss data

According to a study published in 2021, data on economic losses from natural disasters have been sparse since 1990 to 2020. Data was missing for about 96.2% of the disasters that occurred between 1990-2020 for reconstruction costs, 88.1% on insured damages and 41.5% on total estimated damages.

Need for public-private partnership

When it comes to answering who is liable for loss and damages from disasters, often the dialogue remains centered at welfare policy and governments. However, due to limited funding and immense financial stress, countries like India can adopt a public-private approach towards relief, mitigation and adaptation.

Globally, an increased trend in frequency of weather related emergencies

In the last 20 years, UN saw an 800% increase in appeal for weather extremities related appeals. Post 2005, India witnessed a 24% increase in weather related extremities. Flood associated extremities are 20 times more frequent in the country.

Funding gaps for losses and damages from disasters

Developing nations are increasingly orchestrating a dialogue for financial support to cover losses and damages caused by climate change induced disasters. An Oxfam study found that in the past 5 years, only 54% of UN appeals on weather related emergencies were funded leaving a gap of $28–$33bn.

Affecting those already deprived and have subsistence means of livelihoods

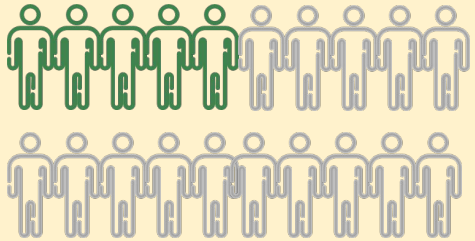
South Asia Disaster Reports from 2016 reveal that high level of subsistence livelihoods are increasingly being affected due to heavy dependence on seasonal weather such as rain-fed agriculture, thus pushing populations further into socio-economic deprivation.

India is the 7th most climate vulnerable country in the world

Monetary Vulnerability

India lost $87 bn as of 2020 from disasters.[2]

Physical Vulnerability



5 out of 20 Indians are highly vulnerable to all sorts of climate disasters.[1]

Geographic Vulnerability

Every 3 out of 4 districts in India are extreme disaster event hotspots.[2]

Floods, Cyclones, Landslides, Earthquakes and Droughts are the five most common disasters in India with 52% of the disasters being floods.[1]

1. Mohanty, A and Wadhawan,S, 2021, "Mapping India's Climate Vulnerability", Council On Energy, Environment and Water.
2. Nandi, J, 2021, "India lost $87bn last year due to natural calamities: WMO", Live Mint.

Frequency of disasters calls for a systemic solution to support communities affected by disasters

Why does India need a disaster intervention platform to capture economic loss?

Affected communities

Lack of community driven data reporting

Lack of a public registry easily available for affected persons

Limited loss data to bridge economic loss gaps

Governments and donors

Delayed and time consuming assessments

Insufficient insights on cumulative losses to identify areas of support for resilience

Lack of a real-time ecosystem platform to interact,collaborate and register

Can technology help?

- To find a solution that can work at scale
- To be able to embrace diversity
- To be able to ensure inclusion and agency

Creating a Domino Effect

3 basic questions

GPS: Where are you?

Aadhar: Who are you?

We know you have been affected **- What <u>state</u> are you in?**

Capture impact
Validate impact
Link to disaster event

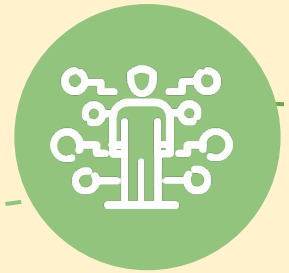
What is the minimal set of building blocks needed here?

1. A **disaster ID** for each household
2. A **Disaster Wallet** for each household
3. A **Household registry** (i.e. a collection of wallets)
4. A **Disaster Event** registry

Creating a Disaster Wallet

Volunteers or Community members accessed relevant forms

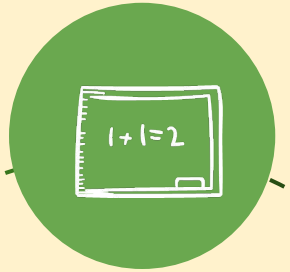
Text, Audio,Video based inputs



Respondents fed in demographic information such as their name,village name, age, income levels and documentation proof

Communities reported loss across Shelter, Livestock, Agriculture, Business

Use of AI to analyse unstructured data



At the back end, analysis was conducted using set formulae for each domain of loss and also cumulative household loss

Each household's e-Wallet (or profile) was updated with data on loss, creating a loss registry

Aakshvi calculates the cumulative HH level loss, overall state level loss and loss at national level using set formulas

Disaster Wallet

1. Economic Value of losses for household
2. Non-economic Data, Sentiments at household level
3. Profile of household, including geographic location
4. Verification status of data
5. Assistance received from external agencies.
6. Channel for communications. Eg. Early warnings, Government schemes

Solving multiple problems at scale

Building a Digital Public Infrastructure

AGENCY: Enabling households to self-report their (vulnerability and loss) data

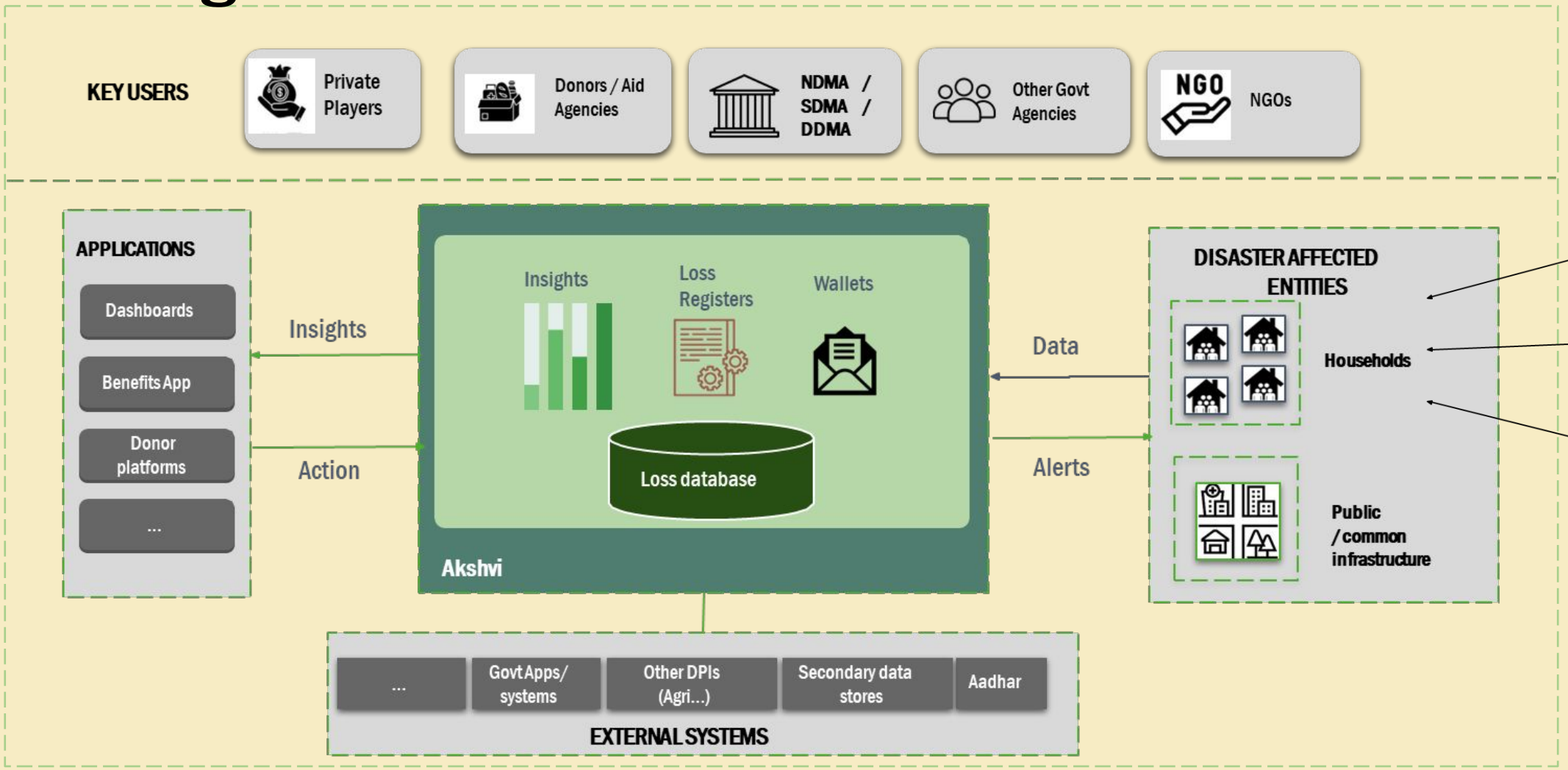
SCOPE: Creating an ID for the household to capture a 360° view of their loss

SCALE: Targeting all vulnerable households in India (~300 million households).

Targeted use-cases spanning multiple stakeholders

	Preparedness	Rescue & Relief	Recovery & Reconstruction	
Households / MSMEs	Report Baseline Data	Report immediate Household needs	Report Household losses	View eligible benefit schemes and alloted benefits
Gram Panchayat	Assist in Baseline Data collection	Conduct Rapid Needs Assessment	Verify Reported Losses	Plan and disburse funds for recovery
NDMA/ SDMA/ DDMA	Identify Vulnerable Households	Drive/coordinate Relief Distribution	Consolidate Reported Household Losses (under PDNA)	
NGOs	Assist Vulnerable Households to Build Back Better	Drive/coordinate Relief Distribution	Identify and facilitate recovery needs	
Line Depts (of Govt)	Collect baseline data of different sectors		Identify and report Infrastructure Loss/Needs (under PDNA)	
Insurance firms	Identify vulnerable households		Verify Insurance claims	

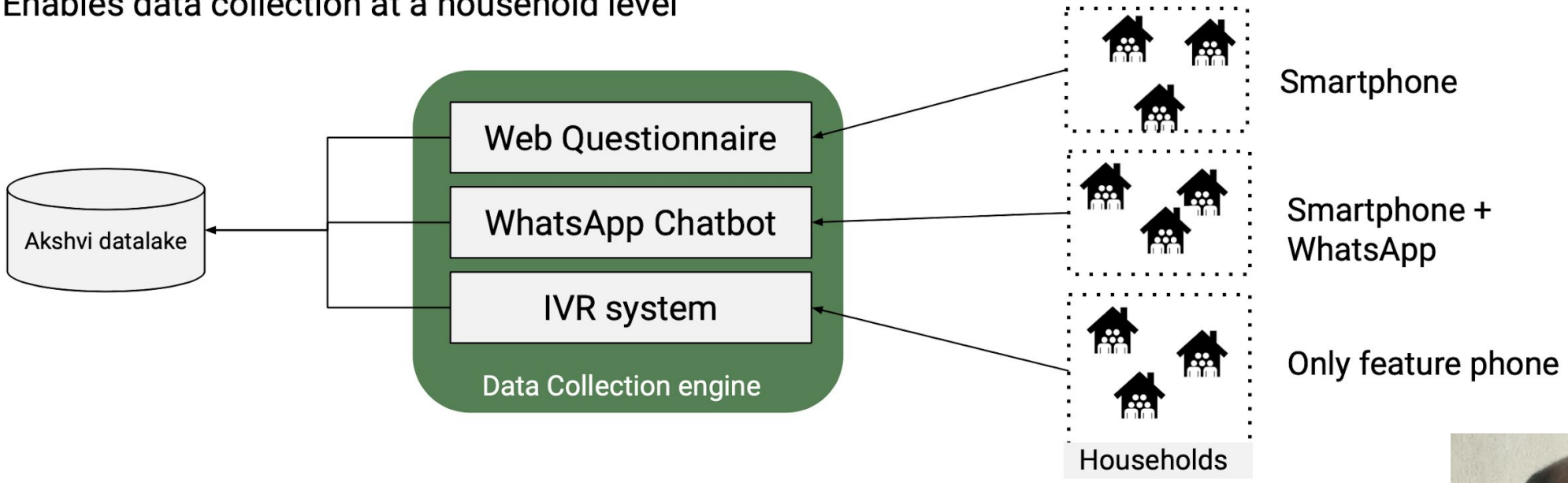
Akshvi: One common digital infrastructure across countries and regions



PRE-REQUISITES

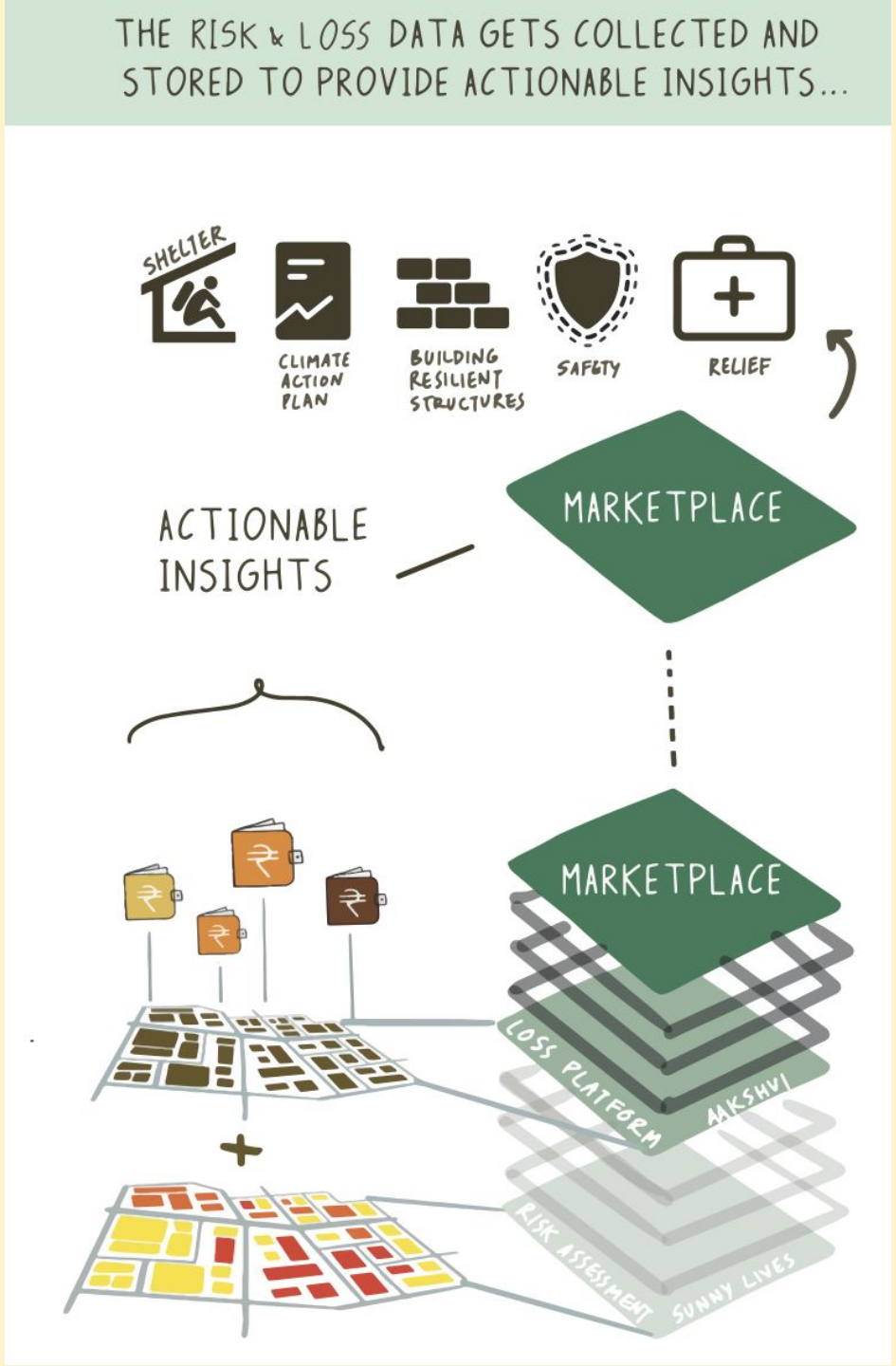
- Phone number list (segment wise)
- Government mandate
- Local/Hyperlocal awareness campaigns

Enables data collection at a household level



PREREQUISITES

1. Phone number list (segment wise)
2. Government mandate
3. Local/Hyperlocal awareness campaigns



The digital public infrastructure that enables affected communities – visibility, credibility, and direct need-based access to assistance in emergencies, in recovery and for early action.

Where is the risk?

Building a hyper local risk model

1 Framework

Building detection
Roof-type classification
Hyper local risk information
Iteration cycles

2 The model

Risk score
Local risk assessment
Area health report

3 Outputs

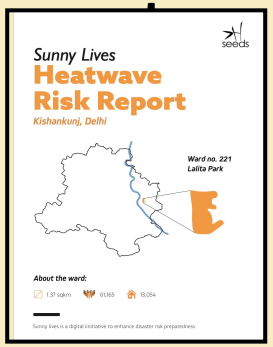
4 Intervention

Localized advisory
Bootcamps/Workshops
Local innovations
Climate action plans
Disaster Management Plans

Risk score upgradation

- **Precision in Risk Assessment** unmatched by traditional methods.
- **Early Warning & Preparedness** for proactive measures
- **Customized Solutions** tailored to locational characterization
- **Scalability and Integration** seamless incorporation into existing systems and workflows
- **Community Engagement** accommodating needs of individual users & organizations
- **Competitive Advantage through incorporation of hyper-local high resolution risk assessment**

3a. Risk



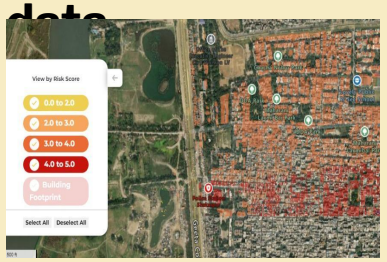
Analysis for hazards like cyclones, floods, heatwave, earthquakes for the village/ area level.

- Hazard risk analytics showing risk hotspots

3b. Dashboards

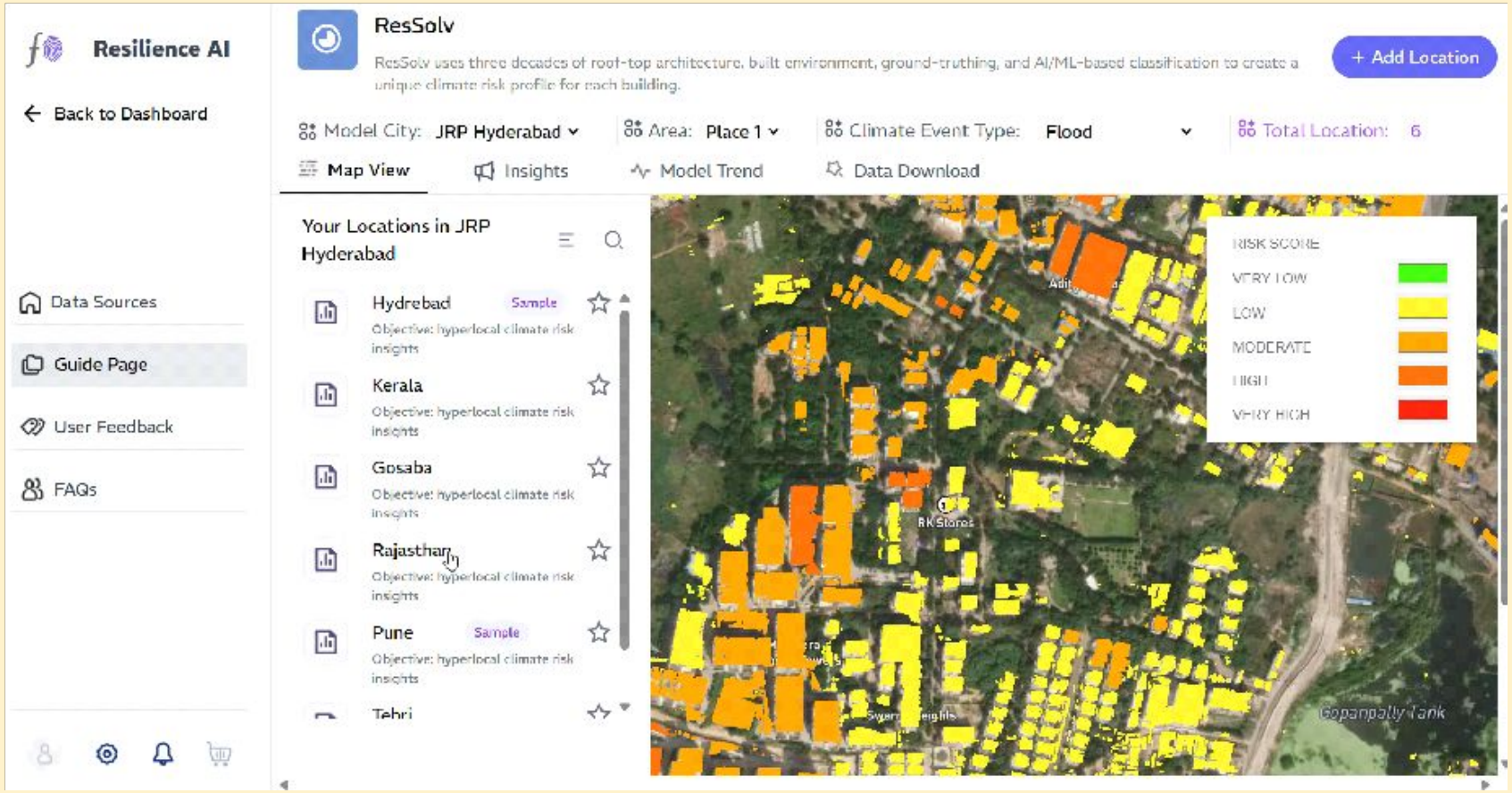
- Developing hazard risk dashboards
- Providing actionable insights
- Risk information as a plug-in to existing dashboards

3c. Geo tagged Hazard risk



Subscription basis
Geospatial data of all roof types in the microsite (wards or Pin-code) categorized by roof-type in a geo-json format.

Determine



Our call to action:

- Replicating the approach for :

  - Hyper-local risk assessment for disaster hot-spots across Asia
  - Country level disaster and climate loss & damage database powered by voices of affected communities
  - Building a shared digital infrastructure for civil society, governments and markets

Thank You

manu@seedsindia.org

SEEDS