

SAFER

WP5: Resilience of Educational Communities

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WP5: Aim and Objectives

- To develop **a roadmap** for long term **resilience** and sustainability of **educational communities**
- To **understand the different stakeholders** in the education system and their relationships
- To **identify what resilience means** in the context of education
- To **work with the educational communities** to achieve the above

🌟 Safer School

Life safety through design of school buildings against extreme events



RISK = HAZARD x EXPOSURE x VULNERABILITY

Arup 2013

SAFER WP1 to WP4

Resilient School

Life safety through design of school buildings
against extreme events

+

Continued functionality - primarily asset based

Comprehensive School Safety

Pillar One:
Safe Learning
Facilities

Pillar Two:
School Disaster
Management

Pillar Three:
Risk Reduction
and Resilience
Education

Comprehensive School Safety Framework
(GADRRRES 2017)



Government of Nepal
Ministry of Education

GOVERNMENT OF NEPAL

MINISTRY OF EDUCATION, SCIENCE AND
TECHNOLOGY

EDUCATION & HUMAN RESOURCE DEVELOPMENT
CENTER

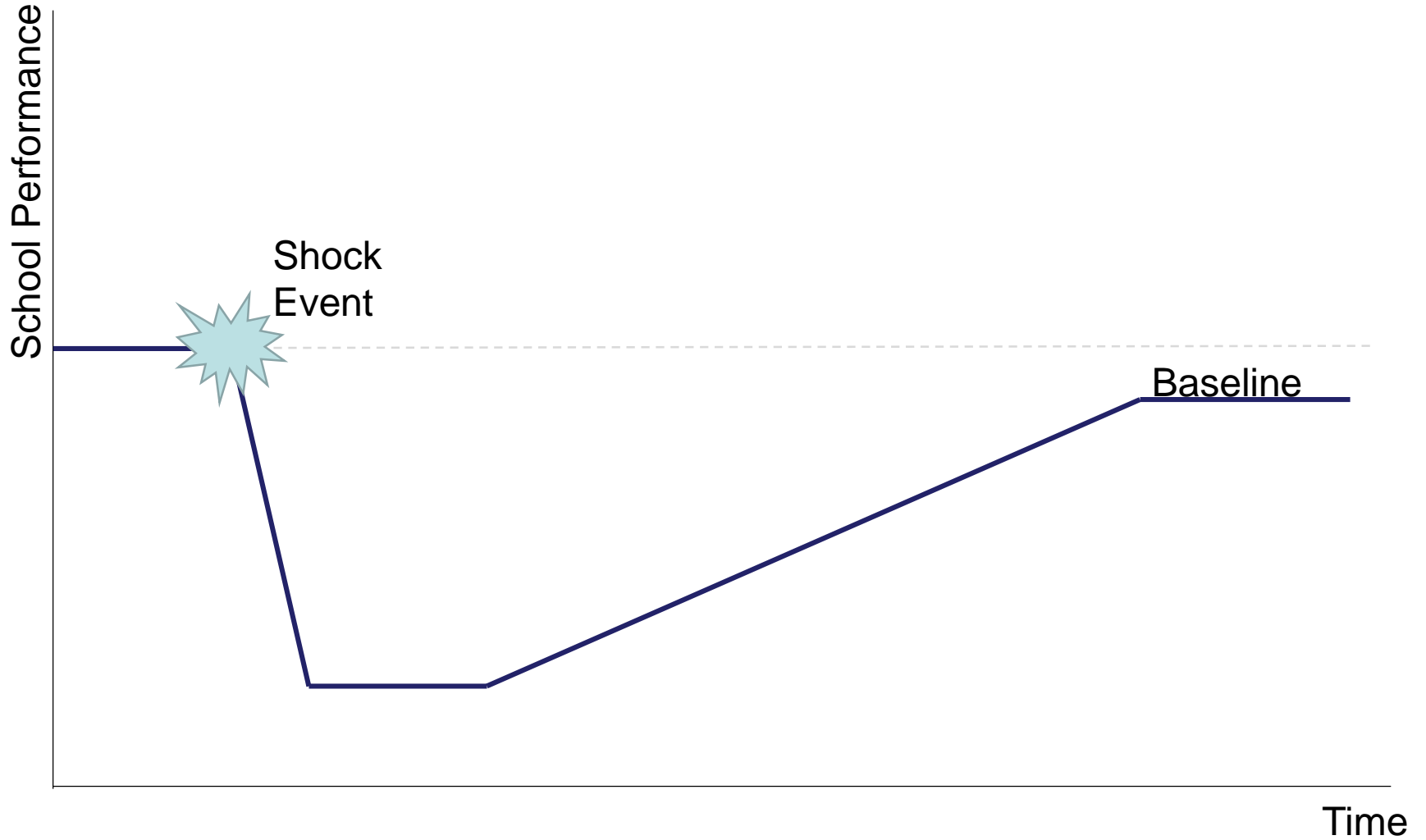
COMPREHENSIVE SCHOOL SAFETY MINIMUM
PACKAGE
VOLUME 1 – REPORT

June 2018

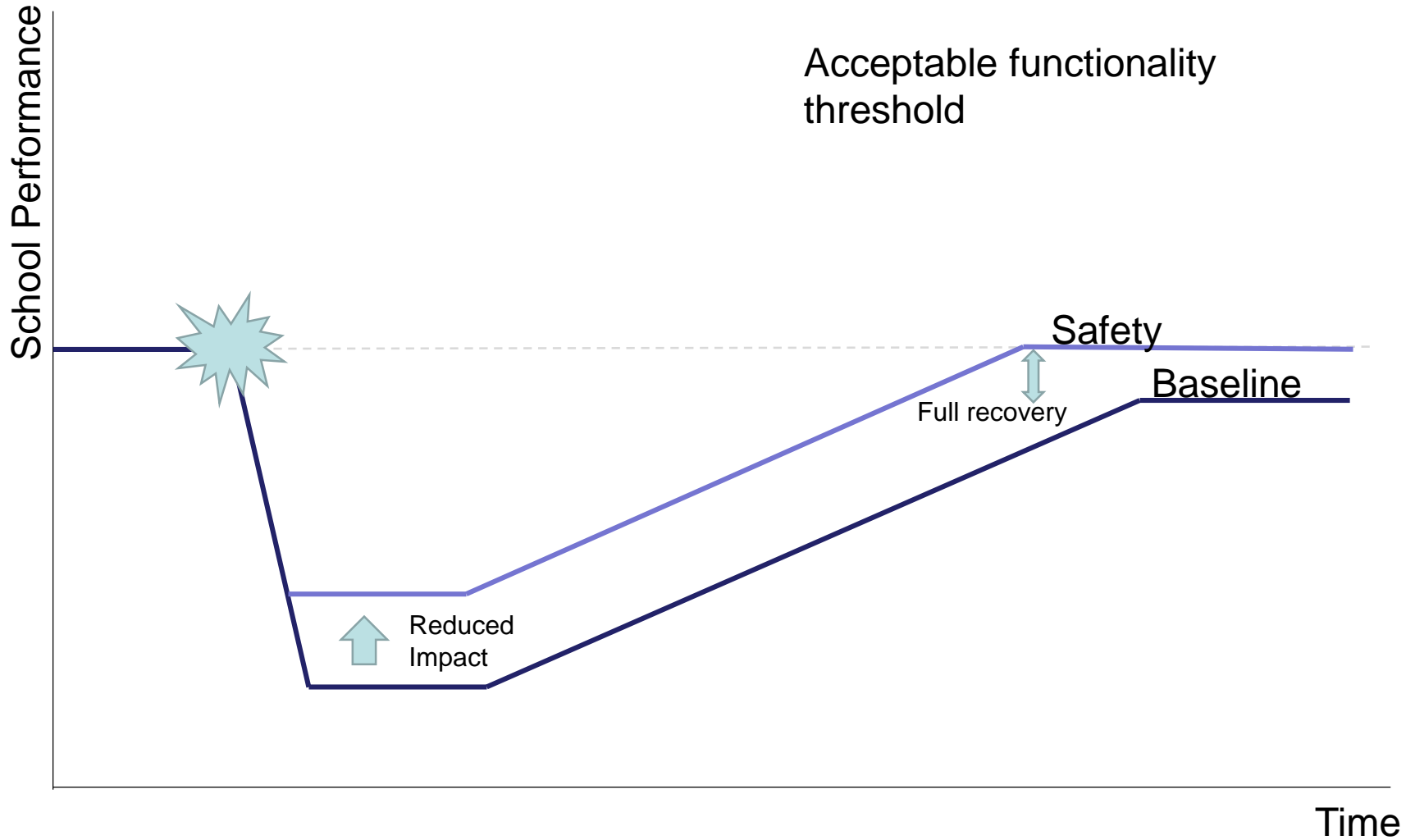
Resilience

“the ability of a *system, community or society* exposed to hazards to **resist, absorb,** accommodate to and **recover** from the effects of a hazard in a **timely** and efficient manner, including through the preservation and restoration of its essential basic structures and **functions**”
(UNISDR 2009)

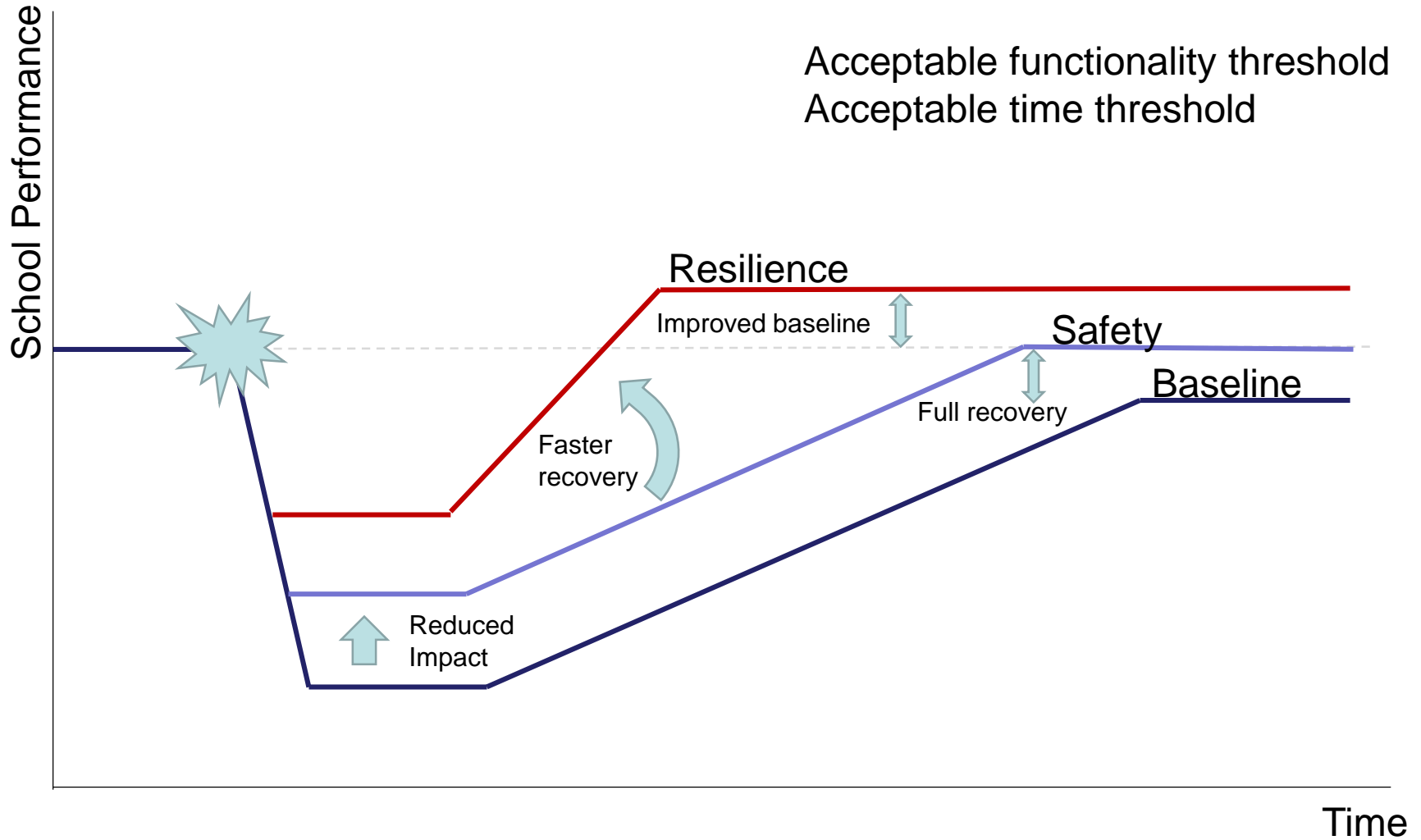
🔥 Safety to Resilience



🔥 Safety to Resilience



🔥 Safety to Resilience



Community

By **community**, it is meant **any group of individuals** that share **common interests, identify with one another**, have a **common culture**, and **participate in shared activities**. (Fellin, 1995)

Community Resilience

By **community**, it is meant **any group of individuals** that share **common interests, identify with one another**, have a **common culture**, and **participate in shared activities**. (Fellin, 1995)

A community's resilience is its **social capital, physical infrastructure, and culturally embedded patterns of interdependence** that give it the potential to recover from dramatic change, sustain its adaptability, and support new growth that integrates the lessons learned during a time of crisis. (Fellin, 1995)

WP5: Resilience Indicators

We aim for **bespoke resilience indicators** for educational communities **in developing countries**

To define these indicators we need to answer several questions:

- **what makes a local school community resilient** to a single and multiple natural hazards?
- can we really **“measure” it ? How?**
- how can we improve it at **different scales**: a school, community, province and central level

Human centered approach

WP5: Resilience Questionnaire

1. Governance and funding --> **Inclusiveness in Governance**
2. Social cohesion --> **Community, Religion, Social Connectivity**
3. Use --> **Redundancy & Exposure**
4. Travel to school --> **Geographical Connectivity**
5. Shocks --> **Hazard awareness and recovery from previous events**
6. Other stresses and environmental conditions
7. **Utilities and infrastructure**
8. **Preparedness, Mitigation measures and Training**
9. **Resourcefulness & Access**
10. **Flexibility & Creativity**

WP5: Resilience Questionnaire

Data from preliminary Survey Questionnaire (60+ schools) helped identify response categories

School building: **A variety** - stone in mud mortar, load bearing brick, reinforced concrete with brick infills, **Mostly single with trussed roof**, RC – two storey, Most damaged in Gorkha EQ and **new blocks under construction**

Governance and funding: Management committees, PTA, state funded, parental contribution low

Other uses: 1-2 community meetings, open ground for shelter, not for hire

Travel to school: **walk up to 4-5km** each way, earthen roads

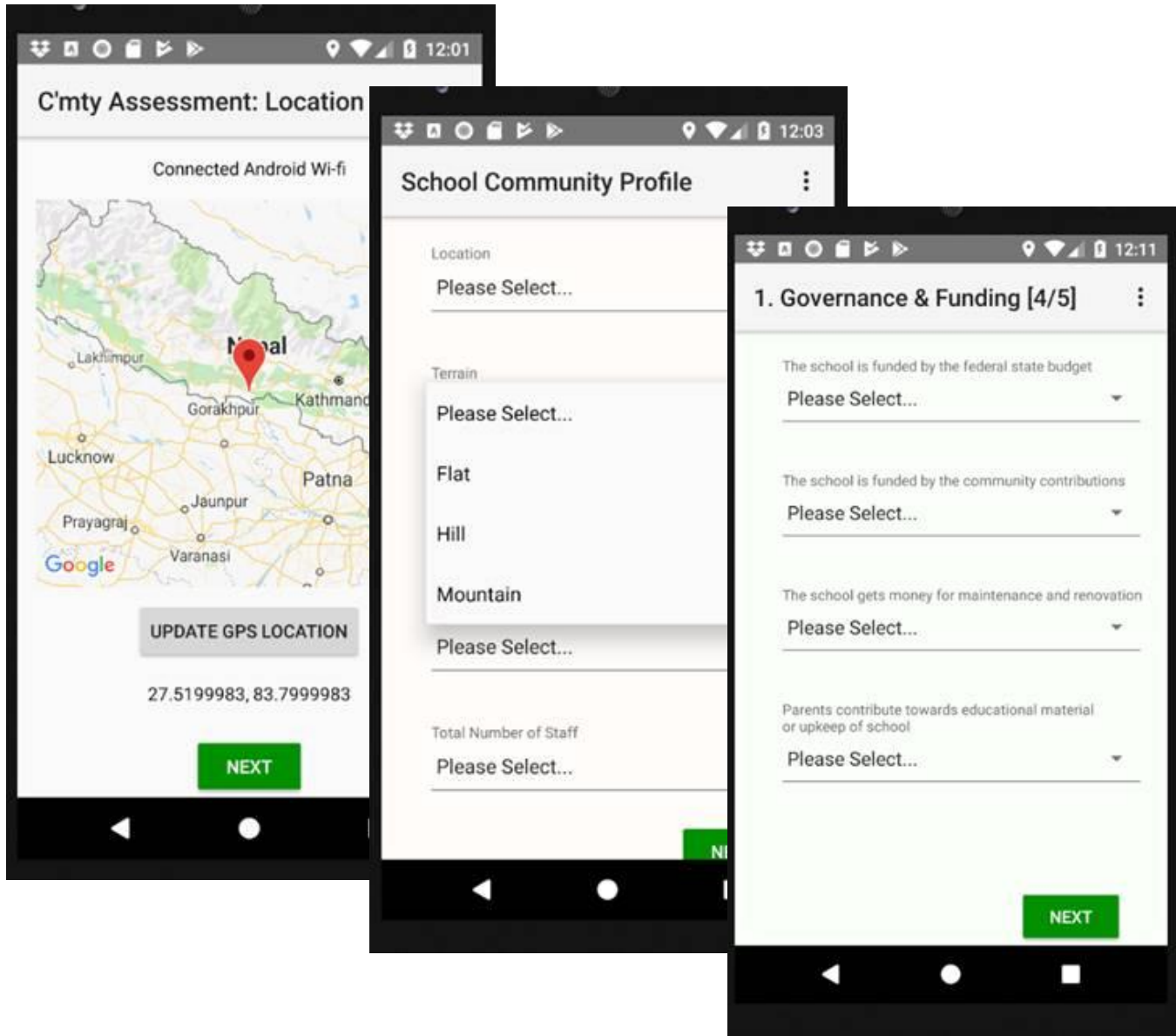
Shocks and recovery: **earthquake**, landslide in a few cases, bamboo/tarpaulin TLC, 2 months

Stresses and recovery: roof blown away, false ceiling

Services and recovery: Water - tank, sanitation – septic tank, electricity grid, mobile phones

Preparedness and measures: staff training, pupils – variable, **work with local stakeholders and district agencies**

WP5: App-based Resilience Questionnaire



WP5: Stakeholder Consultations

Local Govt

SMC

Teachers

Parents

Children

1. Understand what **processes** and **elements** contribute to the function of the school
2. Understand the response to an event
3. Understand impact of shocks and stresses
4. Understand what the **functions** are of the school both normally and after an event

WP5: Community Engagement Activity 1

Consultee **Headteacher / SMC members**

Activity Semi-structured interview

Purpose To define school, education and
resilience from local governance
perspective

Outcomes App improvements; Resilience: clarity of
attributes and scale

WP5: Community Engagement Activity 2

Consultee **School children**

Activity Group activity

Purpose To identify what is important to them;
awareness of hazards

Outcomes Indicators of a resilient school

WP5: Community Engagement Activity 3

Consultee	Staff, parents, local community members
Activity	Workshop: experiences and what needs doing
Purpose	To define school and its interactions; To identify means to achieve resilience
Outcomes	Indicators of a resilient school

WP5: Community Engagement Activity 4

Consultee	Education system stakeholders e.g. municipality/district government members, department of education
Activity	Semi-structured interviews
Purpose	To define school hierarchy and interactions; To map key actions aimed at improving resilience of schools
Outcomes	Resilience: clarity of attributes and scale

Indicators – Metrics from consultations

Reduced vulnerability

- Robustness in infrastructure – reducing building vulnerability, improving strength of road networks and water infrastructure, improve code compliance
- Connectivity improves rather than hinders (domino effect – understand reliance)
- Drills/training to improve behaviour in an event, learning from previous experiences
- Use recovery period to improve status quo

Indicators – Metrics from consultations

Reduced consequences

- Flexibility in teaching methods – can adapt to teaching outside for example, remote learning? Deurbanisation – people leaving cities due to safety fears
- Redundancy in space – can cope with some loss of classroom space.
- Flexibility in space – rooms can be used for different things
- Other infrastructure is functioning? Roads/sanitation
- Communication between different stakeholders
- Other functions of the school are preserved – ECD groups
- Physicality of assets

Indicators – Metrics from consultations

Reduced time to recovery

- Planning for response
- Strong leadership and governance, inclusiveness
- Pre existing information and systems which can be activated rather than having to create them
- Reliance on external parties – federal govt, NGOs
- Quickly accommodating then addressing other uses which take over in a disaster situation – school used as shelter
- Other stresses which hinder recovery
- Understanding and resolving key blockages (e.g. school tagging post earthquake)

🔥 Resilience Indicators – resilient cities



Reflective



Resourceful



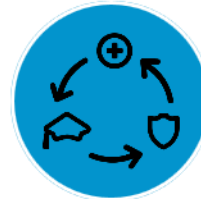
Robust



Inclusive



Redundant

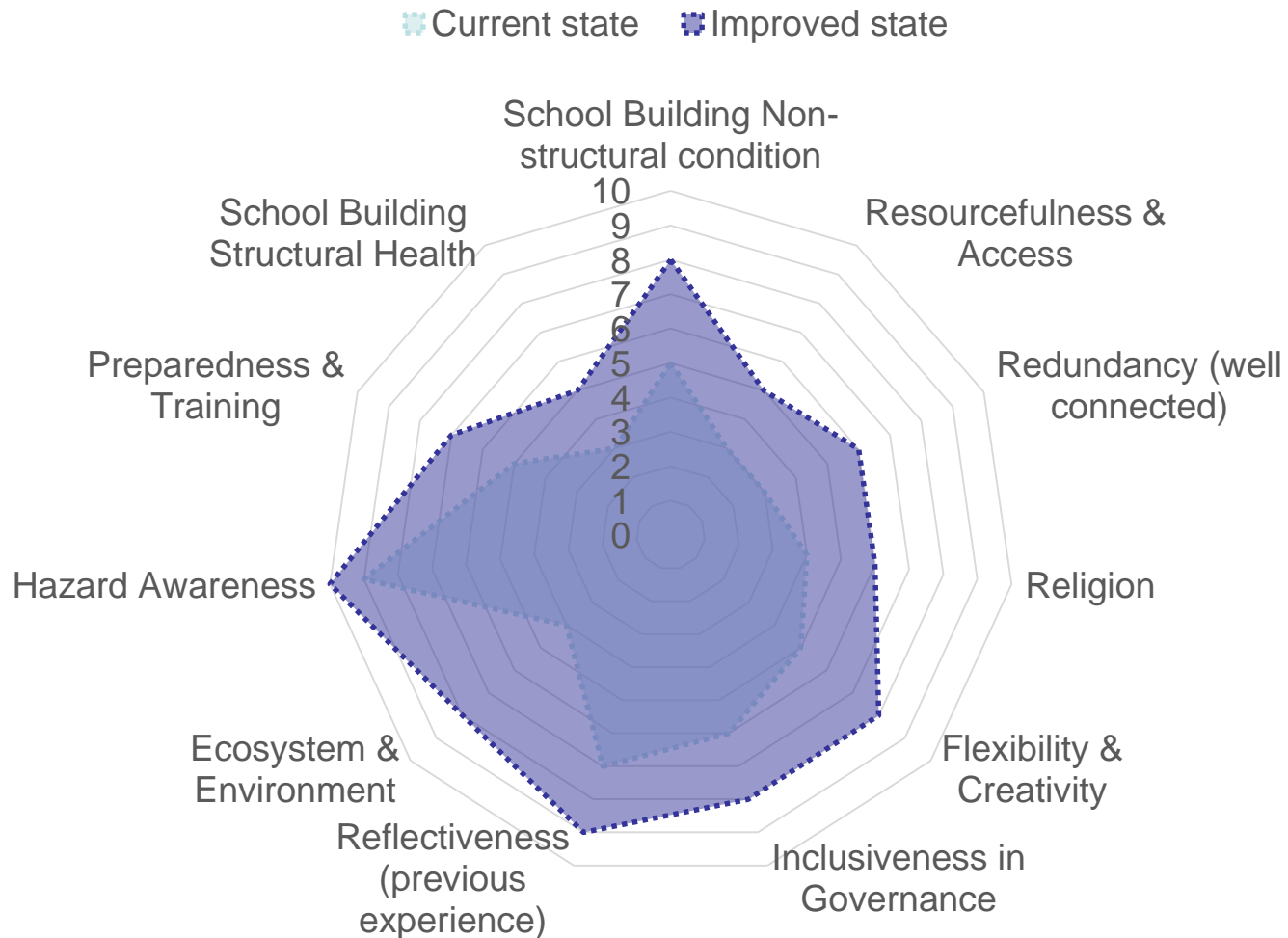


Integrated



Flexible

WP5: Resilience Indicators



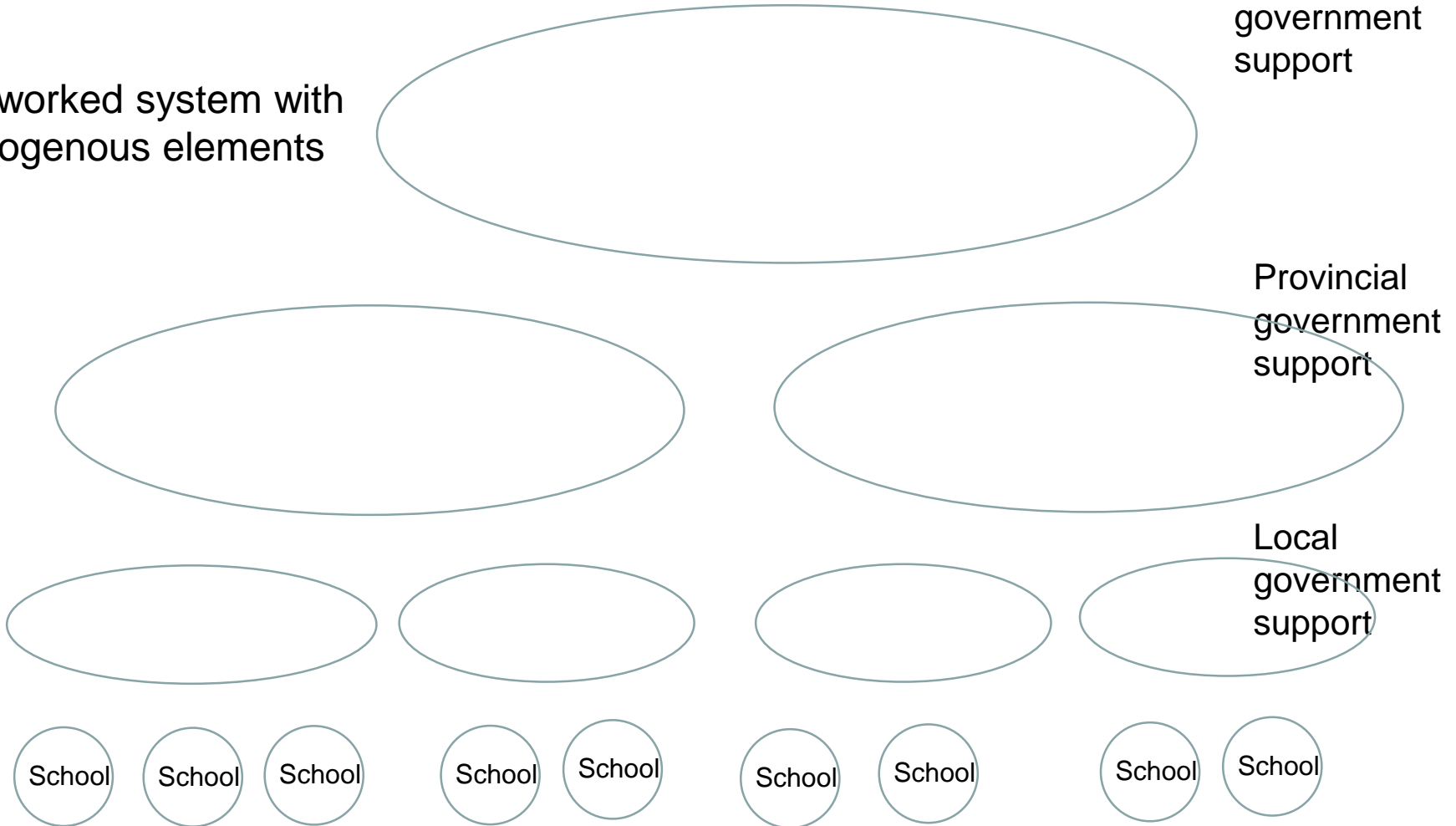
WP5: Education System Hierarchy

a networked system with heterogenous elements

Federal government support

Provincial government support

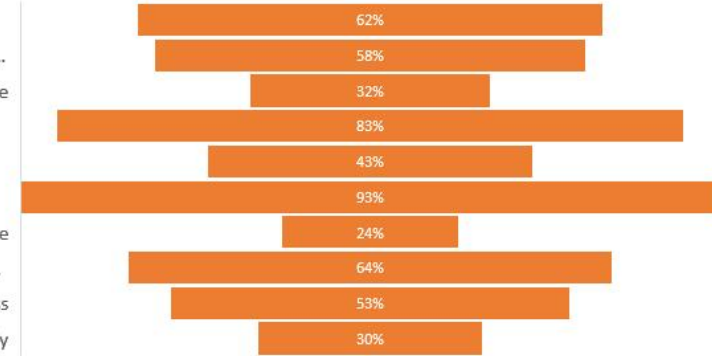
Local government support



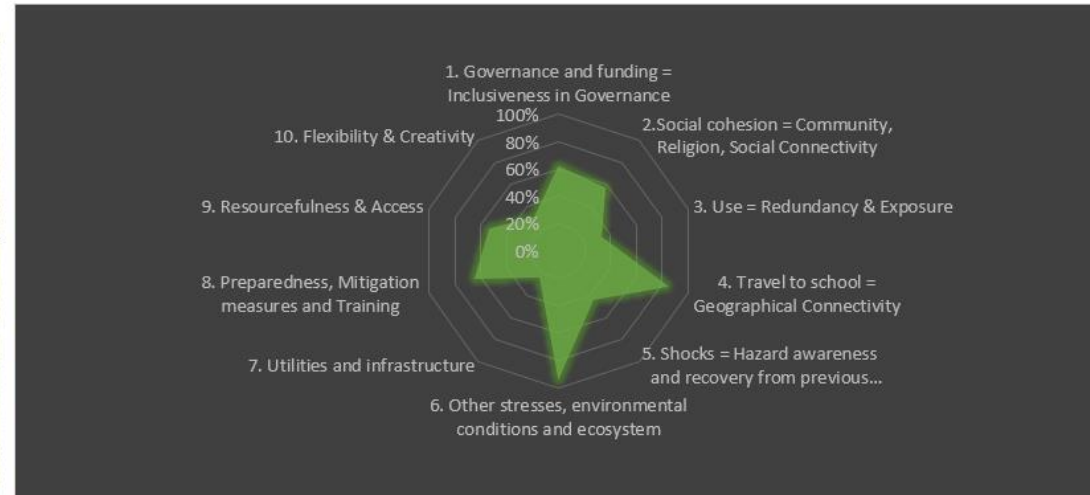
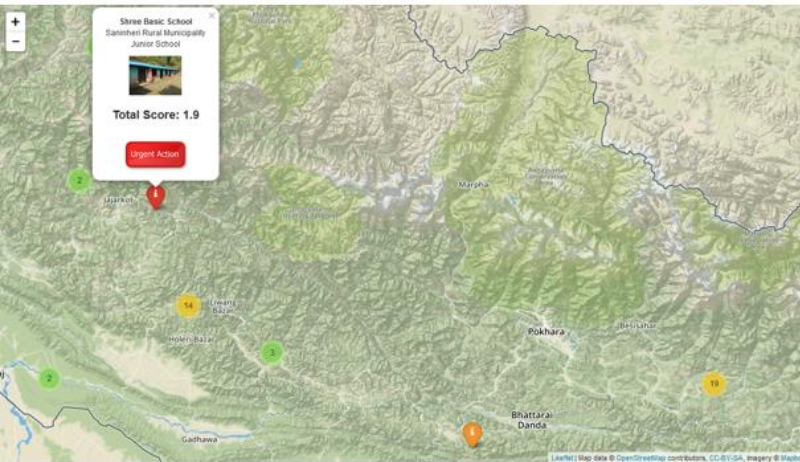
WP5: App-based Resilience Measurement

1. Governance and funding = Inlusiveness in Governance	62%
2. Social cohesion = Community, Religion, Social Connectivity	58%
3. Use = Redundancy & Exposure	32%
4. Travel to school = Geographical Connectivity	83%
5. Shocks = Hazard awareness and recovery from previous events	43%
6. Other stresses, environmental conditions and ecosystem	93%
7. Utilities and infrastructure	24%
8. Preparedness, Mitigation measures and Training	64%
9. Resourcefulness & Access	53%
10. Flexibility & Creativity	30%

1. Governance and funding =...
2. Social cohesion = Community, Religio...
3. Use = Redundancy & Exposure
4. Travel to school = Geographical...
5. Shocks = Hazard awareness and...
6. Other stresses, environmental...
7. Utilities and infrastructure
8. Preparedness, Mitigation measures...
9. Resourcefulness & Access
10. Flexibility & Creativity



Total Resilience Index 54%



WP5: Summary

