

# **Workshop on Building Disaster and Climate Resilience in Cities 15 & 16 October 2019, Kuala Lumpur, Malaysia**

Science, Engineering, Technology and Innovation for  
Building DRR Capacity in Asia and the Pacific Region

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# DRR in UNESCO's Medium-Term Strategy for 2014-2021

UNESCO will maintain a major focus on **disaster risk reduction** (DRR), as the most cost-effective means to mitigate the effects of disasters and save lives, heritage and infrastructure. Emerging areas of DRR competence for UNESCO include the **remote sensing** of emergency groundwater resources in drought-affected countries; **national floods forecasting** and **water resource management**; **DRR education** including through radio and other media; as well as the global expansion of **Tsunami Early Warning Systems**.

UNESCO's disaster response strategy will focus on **access**, including access to fresh water, to education, to disaster risk reduction information, to hazard assessments, and to capacity building for multi-hazard disaster early warning systems and resource management.



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2014-2021

MEDIUM-TERM  
STRATEGY

# UN WCDRR & Sendai Framework for DRR

## Four Priorities of Action

1. **Understanding** disaster risk
2. **Strengthening disaster risk governance** to manage disaster risk
3. **Investing in disaster risk reduction** for resilience
4. **Enhancing disaster preparedness for effective response** and to “**Build Back Better**” in recovery, rehabilitation and reconstruction

## Seven Global Goals

1. Reduce global **disaster mortality**
2. Reduce the number of **affected people**
3. Reduce direct disaster **economic loss** in relation to global gross domestic product
4. Reduce **disaster damage to critical infrastructure and disruption of basic services**
5. Increase the number of countries with **national and local disaster risk reduction strategies**
6. Enhance **international cooperation to developing countries**
7. Increase the availability of and access to **multi-hazard early warning systems and disaster risk information and assessments**

## UNESCO's Contribution

*UNESCO co-organized 8 sessions at the UN World Conference of Disaster Risk Reduction*

- Science and Technology for DRR Decision Making
- Early Warning
- Building Codes
- Risk Identification
- Underlying Risk Factors
- Safe Schools
- Cultural Heritage
- Education and Knowledge



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# UNESCO's Activities Culture

## Strategy for Reducing Risks from Disasters at World Heritage Properties

- Training Workshops
- International Technical Assistance
- Emergency Response
- Awareness-raising and Education



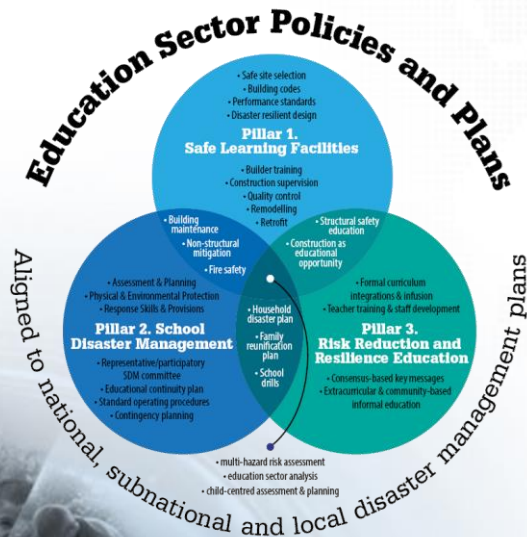


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# UNESCO's Activities Education

## Education sector

### Comprehensive School Safety Framework



### The Global Action Programme for Education on Sustainable Development (GAP)

#### A Comprehensive Framework for School Safety

Identifies three overlapping pillars: 1. Safe Learning Facilities, 2. School Disaster Management, and 3. Risk Reduction and Resilience Education

with the following goals:

- To protect learners and education workers from physical harm in schools;
- To prevent interruption of the provision of education when faced with hazards;
- To safeguard education sector investments;
- To strengthen climate change adaptation and mitigation competencies and disaster resilience through education

# Regional Science Bureau for Asia and the Pacific Support Strategy

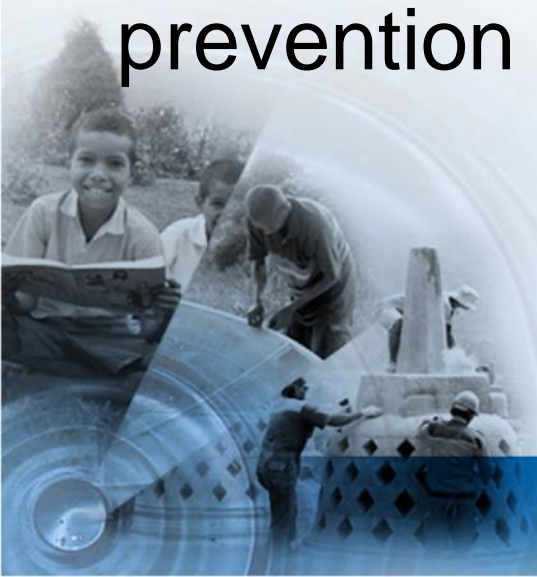
## Science, Engineering, Technology, and Innovation for Disaster Risk Reduction

**2017 - 2021**



# Mission

To advance the use of science, engineering, technology, and innovation (SETI) to mitigate disaster risks and strengthen the resilience of societies through better understanding the hazard and risk, prevention and risk reduction, preparedness, and early warning.





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# Regional and Global Drivers



## UNITED NATION SDGs

UNISDR  
Science &  
Technology  
Roadmap

### Regional DRR Frameworks

- Asia Regional Plan for implementation of SFDRR
- Pacific Framework for Resilient Development

### Global DRR Frameworks

- Sendai Framework for DRR (2015-2030)
- UN Plan for Action on DRR for Resilience

### Regional Development Frameworks

- Asean Vision 2025
- Strategic plan for SDF
- SAMOA Pathway

### Regional DRR Frameworks

- Asia Regional Plan for implementation of SFDRR
- Pacific Framework for Resilient Development

**UNESCO MEDIUM-TERM STRATEGY (2014-2021)**





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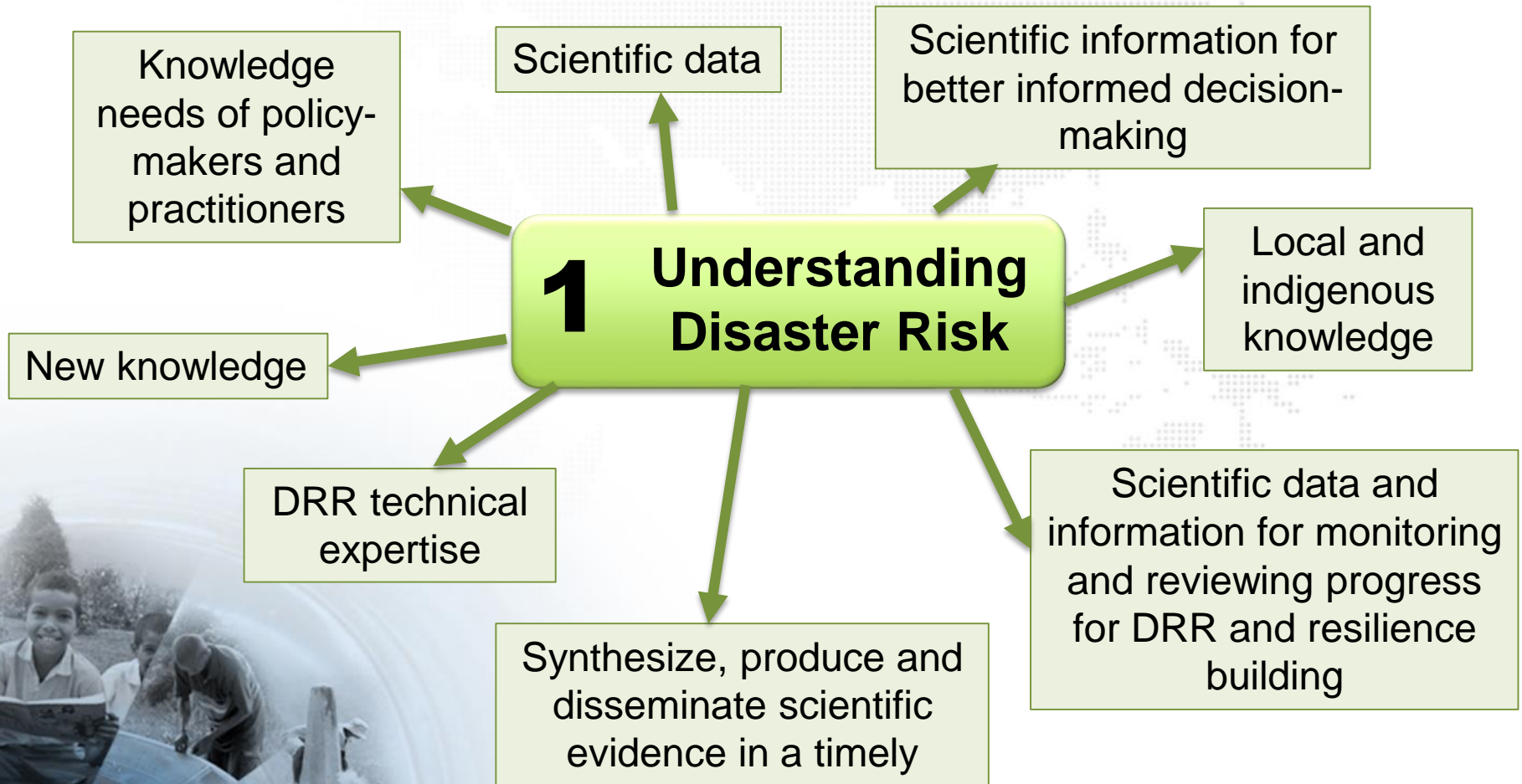
# Mapping DRR in SDG Targets



Source:  
Droeser, M.H. Reduction and Resilience in the 2030 Agenda for Sustainable Development: UNISDR Reflection Paper (October 2015)

\*Detailed explanation on the targets can be seen in the annex

# Science, Engineering, Technology and Innovation (SETI) for SFDRR (SFDRR Priority For Actions)



# SETI for SFDRR (SFDRR Priority for Action)

**2** Strengthening Disaster Risk Governance to Manage Disaster Risk

Involvement and use of science to inform policy- and decision-making

**3** Investing in Disaster Risk Reduction for Resilience

Scientific evidence for investment and development planning

**4** Enhancing Disaster Preparedness for Effective Response, and to “Build Back Better” in Recovery, Rehabilitation and Reconstruction

Scientific data and information to strengthen preparedness, response and to “Build Back Better”



# RSBAP Strategic Directions



*Science, Engineering,  
Technology and Innovation for*

**Risk Assessment**



*Science, Engineering,  
Technology and Innovation for*

**Early Warning System**



*Science, Engineering,  
Technology and Innovation for*

**Prevention, Preparedness  
and Risk Reduction**



*Science, Engineering,  
Technology and Innovation for*

**Resilience and  
Sustainable Development**

# RSBAP SETI for DRR Programme



**Geo-hazards**



**Water**



**Coastal  
(Tsunami)**



**School  
Safety**



**Heritage  
Sites**



**Crisis and  
Transition  
Response**



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# Prioritisation

**SETI Application**

**Transboundary**

**UNESCO Competitive Advantage**

**UNESCO Programme Priority**

**Resource (Funding)**

**Contribution to Global Frameworks**

**Partnership**

**Cross Cutting Issues**



# Support by RSBAP



**Tools and Guidelines**



**Coordinate Regional Cooperation in DRR Research**



**Coordinate Policy Development for SETI to support DRR**



**Establish and Strengthen Cooperation with Partners**



**Promote Public Awareness on SETI for DRR**



**Coordinate with scientific community on SETI for DRR**



**Assistance on technical studies and capacity building**

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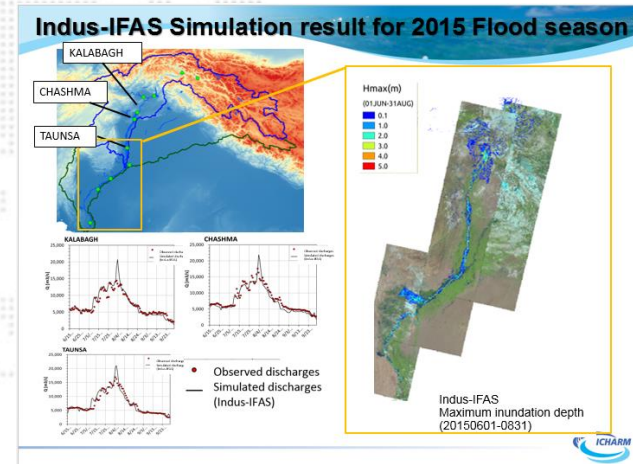
## Examples of SETI for DRR

### FLOOD TECHNOLOGY & DISASTER RISK REDUCTION

#### Strategic Strengthening of Flood Warning and Management Capacity in Pakistan

Following the 2010 Pakistan floods, UNESCO with the aid of the Government of Japan supported the Flood Warning and Management Capacity of Pakistan' project.

The project focused on strengthening the country's capacity to deal with floods and watershed management in a holistic manner by developing 3 inter-related pillars; strategic augmenting of flood forecasting and hazard maps; data sharing platforms; and capacity development.



- Establishment of the technical foundation for sustainable capacity development on the flood management, forecasting, early warning and flood hazard analysis in Pakistan agencies.
- Technical studies to promote strengthening of cooperation with Indus river basin countries for transboundary flood management and transboundary data sharing.
- Capacity building and education to community on flood management for proper utilization of flood hazard information and tools



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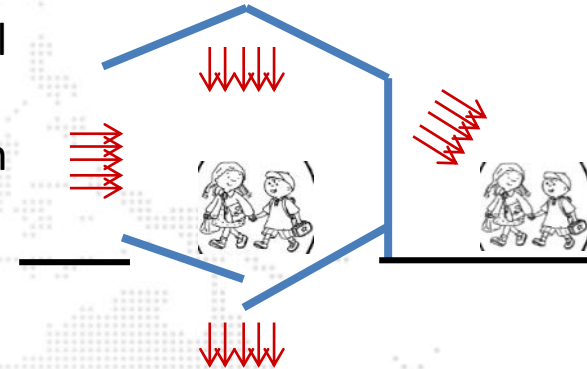
## Examples of SETI for DRR

### **VISUS** (Visual Inspection for defining the Safety Upgrading Strategies). Multi-hazard school safety assessment methodology and tools through science-based information



The VISUS methodology is based on a technical engineering approach that can be used by engineering students and building construction vocational students to assist the government to better prioritize safer school programs in their region.

The method aims to help policy makers in deciding where to focus their risk reduction efforts and interventions based on available resources and scientific-evidence information.



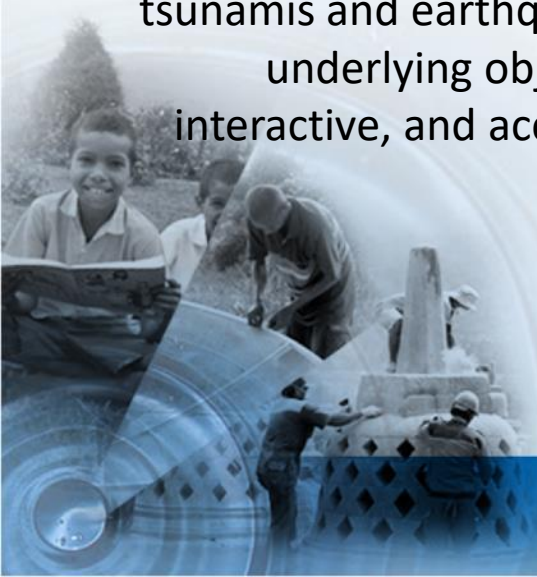
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## Examples of SETI for DRR

### Mobile Application for Preparedness

TANAH and SAI FAH are prime examples of educational gamification for disaster risk reduction. The mobile apps provide integral lessons on, and reinforces the importance of, disaster preparedness, through exploring potential situations that may occur. Offered as platform-based games with various levels, users are provided with key survival lessons for all phases of disaster in an interactive manner.

While SAI FAH disseminates information on flood preparedness and survival, TANAH teaches users how to prepare, respond to and recover from tsunamis and earthquakes. Both succeed in their underlying objectives of delivering quality, interactive, and accurate material in an organic way to a wide audience.





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# Thank you



Regional Sciences Bureau for Asia and the Pacific - UNESCO Office, Jakarta