Developing Early Warning System (EWS) in wearable technology for disaster preparedness

UNDP Accelerator Lab Indonesia
 Identified SDGs issues by Accelerator Lab Indonesia

Identified SDGs:

• With more than **270 million people living on 17,000+ islands**, Indonesia is prone to earthquakes, tsunamis, floods & volcanic eruptions.

• One of the **world’s deadliest natural disasters** was the 2004 Aceh earthquake and tsunami, causing **230,000 casualties** with an estimated total damages and losses of USD4.45 billion.

• Majority of current disaster risk reduction (DRR) programs in Indonesia are still concentrating on physical infrastructure, overshadowing the need for an inclusive approach to disaster preparedness.

• **Investments on mitigation efforts** such as early warning system (EWS) for natural hazards needs to be strengthened and designed to be more accessible for vulnerable communities.

• **Early warning and action** are keys to minimizing the impact of future extreme weather events and climate change.
Planned/on-going solutions by Accelerator Lab Indonesia

Objective: Developing Early Warning System (EWS) and integrating into wearable technology

- To enable better access to disaster data, leverage EWS and innovative learning programs to instigate early action and strengthen communities’ resilience
- To ensure local communities and administrations have the capacity to operate and maintain the early-warning tools installed, particularly for at-risk and impacted communities in disaster-prone areas
- To increase awareness for disaster warnings and weather signals to improve mitigation measures

Learning Cycle: Water resilience (rapid research for policy brief)
- Ethnography study in 7 cities and public survey on flood filled by participants in 78 cities
- Potential partnership with LIPI on 2 pilot cities
- Support towards InaRISK Hackathon Fest: digital solutions & mobile apps

Learning Cycle: Inclusive digital innovation and youth for DRR
- Initial assessment and experimentation with partners (EWS & wearable tech):
  - 2 flood-prone cities
  - 2 earthquake-prone cities with potential of tsunami and landslides

The Japan SDGs Innovation Challenge is planned to be implemented with a new partner company during this phase

Development of water data stories & cross-pollination experimentation in communities

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Expertise/technologies expected from Japanese partners

• Effective **Early Warning System (EWS)** that could detect natural hazards and disasters (including its gateway and servers)
Expertise/technologies expected from Japanese partners

• Integration into **low-cost and low-maintenance wearable technology** suitable for low resource settings (data stored in cloud systems to avoid excessive energy in its operation) with potential adoption by the InaRISK system, a platform of the Indonesian risk information

• Development of **innovative learning systems** that enable users (youth, students, public) to experience virtual disasters and understand its risk
Stakeholders & Resources of the project

**UNDP Accelerator Lab and RRU**
- Project coordinator & key decision-maker
- Data collection, validation and analytics
- Project Monitoring and Evaluation Support
- UNDP ICT unit will support on ICT Platform Testing & Integration support

**Japanese corporation**
- Co-developer of the technology
- Cloud Infrastructure for Testing and Deployment

**Japanese corporations**

**Indonesian Institute of Sciences (LIPI), CSOs and other research institutions**
- Project Pilot Sites and Coordination with Field Offices for Deployment
- Collaboration status: planned for open call, already has MoU with other units

**Regional government, CSOs, and local communities**
- Co-design partner: organizations for People with Disability (PwDs) and other vulnerable groups
- Collaboration status: planned for open call

**National Agency for Disaster Management (BNPB) and Hypocrite (Startup)**
- Project technical & advisory support
- Data collection, validation and analytics
- Co-developer of technology
- Collaboration status: already ongoing for other projects

**The Meteorology, Climatology and Geophysic Agency (BMKG) and other disaster data holders**
- Source for disaster data and existing EWS
- Data collection, validation and analytics
- Collaboration status: planned for open call

**Local administration, CSOs, and communities**

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Expected follow-up activities to the project

April – June 2022

Handover of EWS and wearable technology to prospective partners

Potential B2G Adoption

• National Agency for Disaster Management (BNPB) to independently host and manage the technology

Potential B2B Adoption

• Prospective business partners (ICT or electronic device companies) to adopt EWS into their wearable technology

July – September 2022

Public showcase of the project during Accelerator Lab’s annual event

Presenting outcomes of the project

• Proposed joint launch of the technology together with BNPB and other governmental partners to enable public adoption

• Potential data sharing into the InaRISK system, a platform of the Indonesian risk information

October – December 2022

Support for scale-up by partner

Scale-up of technology

• Light support from Accelerator Lab to partners in implementing the technology for scaling up efforts across different regions
Accelerator Lab Indonesia Team

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