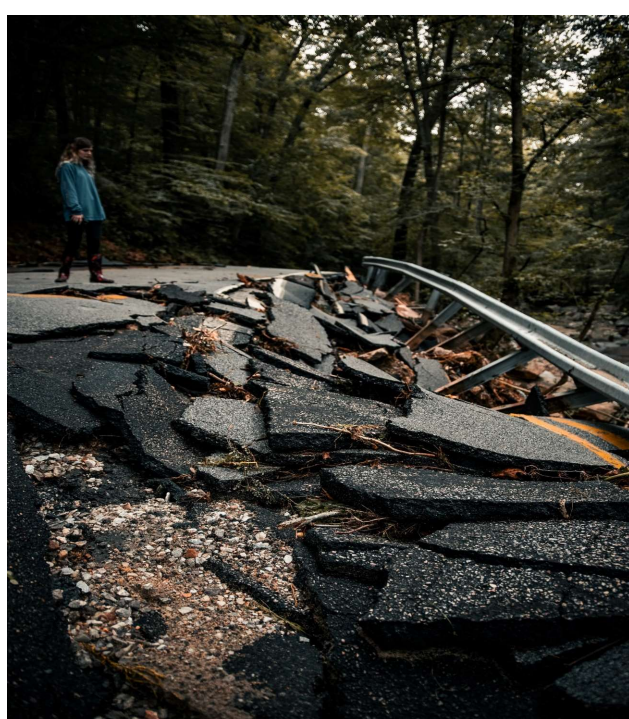


Innovative solutions for Disaster Risk Reduction



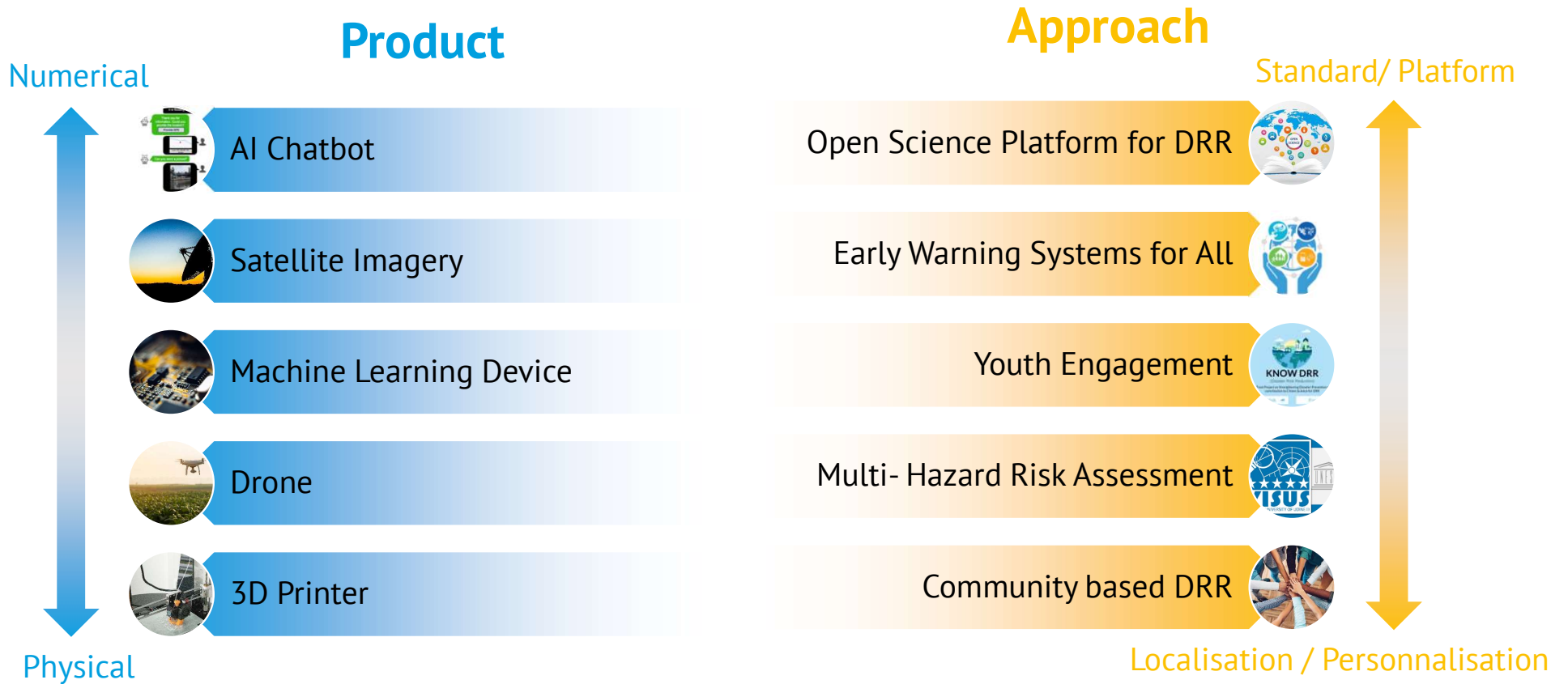
UNESCO DRR 8 Thematic Areas

- At the interface of a wide mandate - Natural and Social Sciences, Education, Culture, and Communication and Information, UNESCO takes a **multi-hazard, multi-disciplinary and multi-stakeholder participatory approach**.
- **8 cross-cutting thematic**
- UNESCO explores **both conventional and innovative solutions** for effective preparedness and response.
- **UNESCO's priority areas:** Africa, gender, SIDS, youth.



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Mapping of Innovative solutions for DRR



Innovative Product 1: AI for efficient risk communication

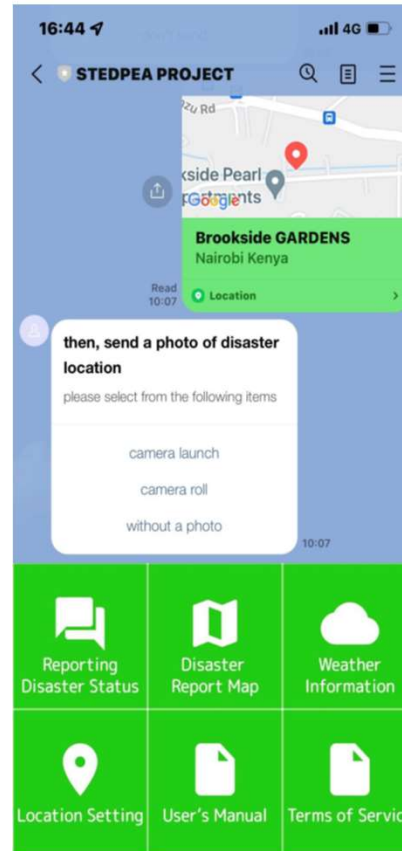
Strengthening Disaster Prevention Approaches– STEDPEA

AI Chatbot (Mobile Applications)

In 5 countries (Kenya, Rwanda, South Sudan, Tanzania and Uganda)

AI chatbot enable sharing information on disasters and connecting communities to expedite relief efforts during disasters.

- **Optimize the communication** between government and citizen
- **Share the information** of supplies and evacuation immediately
- **Grasp the situation** of damage/recovery accurately for both side



Pinpoint Early Warning

When the National Warning is issued



Shows quickly where the warning or Hazard information is issued to help safe and early evacuation



When the Hazard information is issued



Hazard Report & Record Mapping

It is flooding here



Realtime recording and mapping helps to grasp the disaster situation and safe evacuation.

Also the map is useful after the disaster to analyze the risk of hazard for the government.



Can you send a picture?



www.xxx.xxx.xxx.com

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Innovative Product ●: Social media analysis using AI

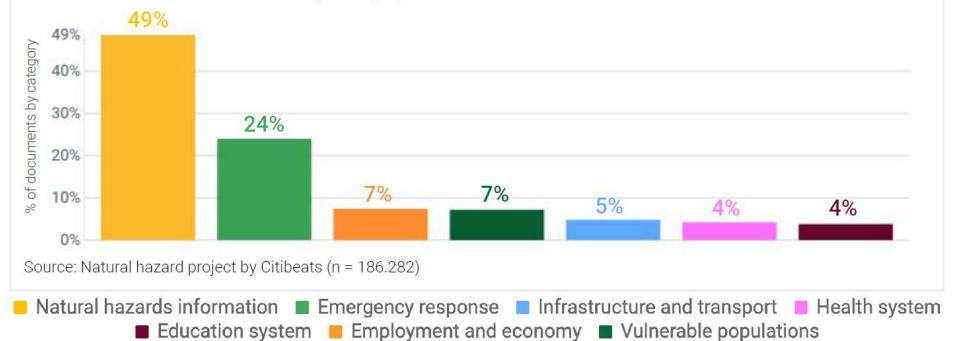
- **Artificial intelligence is used to Identify how people's needs and concerns change before/during/after a natural hazard from the social media**

- ✓ Citizens' opinions was collected in **5 countries** (Kenya, Rwanda, South Sudan, Tanzania and Uganda) from social media before/after 2 weeks.
- ✓ The collected data was categorized into **7 categories** by AI.
- ✓ The data was analyzed by AI to better understand the people's needs for decision maker.



Natural hazards information and emergency response are the main categories in the general conversation

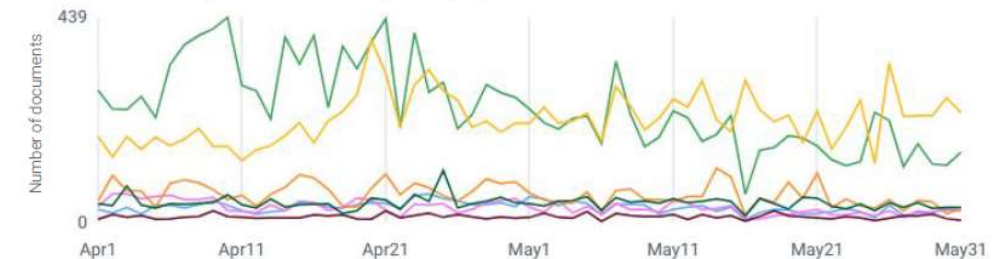
Distribution of the conversation by category in %



Evolution of the conversation in Kenya from April 1st to May 31st of 2020

Daily evolution of the conversation by category

(Floods and landslides in Kenya)



Source: Natural hazard project by Citibeats (n = 39.895)

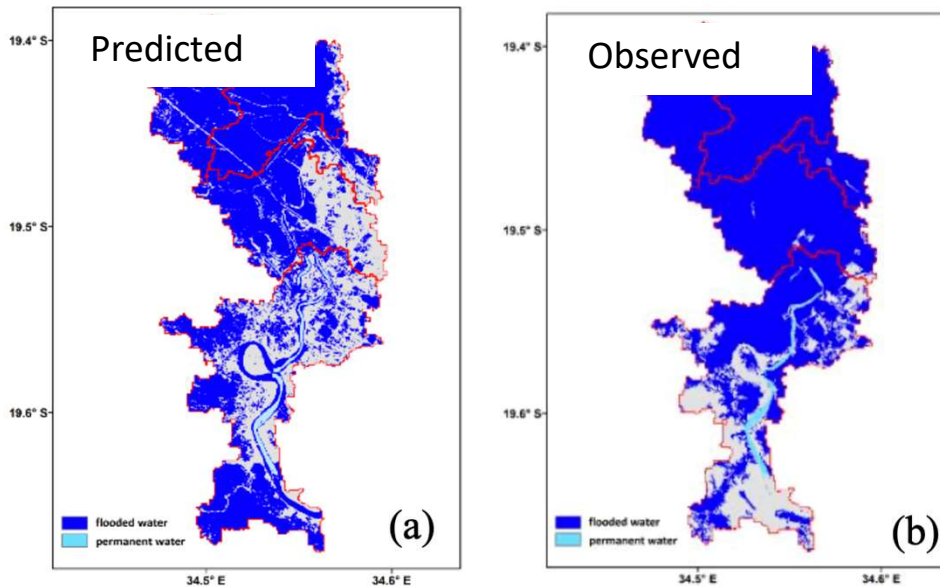
Change of people's concern among 7 categories



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Innovative Product 2: AI predicts upcoming floods

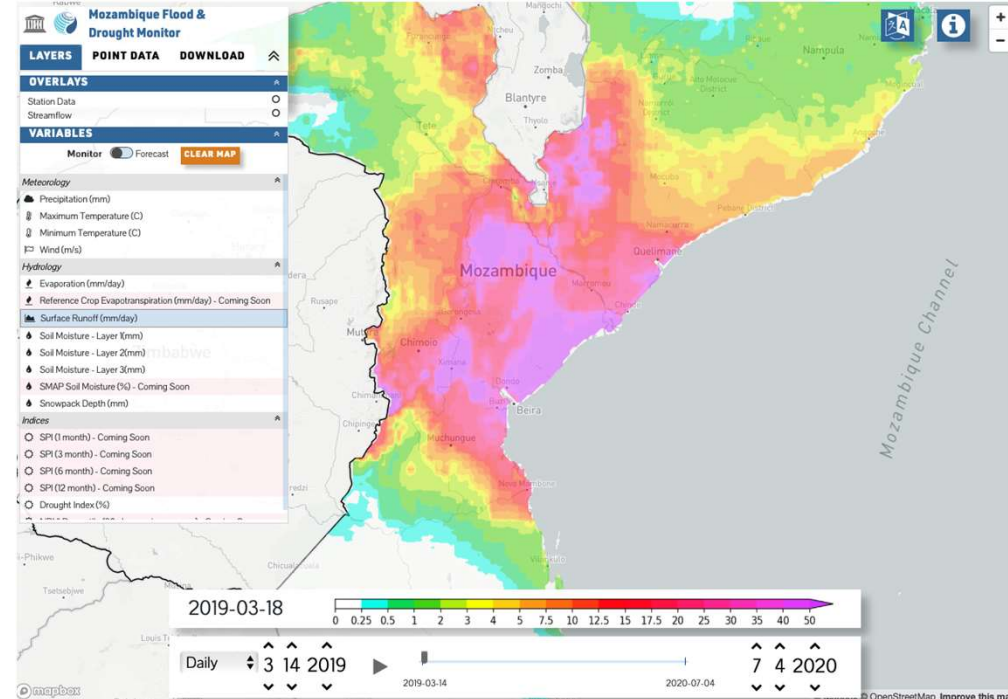
- Artificial intelligence is used to predict areas with a high probability of flooding in the next 24 hours.



24-hour, AI-powered forecast of flooded areas in Mozambique's flood-prone areas



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Resilient
BIOSPHERE RESERVES
CLIMATE CHANGE OBSERVATORIES



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About the Recommendation on the Ethics of AI

It is the **only globally agreed upon normative instrument on AI** adopted by all **193 Member States of UNESCO** in Nov. 2021, and the **first that considers environment and ecosystems as a key element when discussing AI**

- ✓ It ensures that every society is prepared to **tap into the unprecedented power of AI while mitigating the associated ethical risks.**
- ✓ It therefore promotes **VALUES** such as respect, protection and promotion of human rights and fundamental freedoms and human dignity, diversity and inclusiveness, **including one dedicated on environment and ecosystem flourishing**, etc.
- It also upholds **PRINCIPLES** such as Proportionality and Do No Harm, Safety and security, Fairness and non-discrimination, **Sustainability**, Right to Privacy, and Data Protection, adaptive governance and collaboration, including one on **Responsibility and accountability**, which makes it **mandatory to ensure auditability and traceability of AI systems to address any conflicts with human rights norms and standards and threats to environmental and ecosystem well-being;**
- ✓ It outlines actions in **11 Policy Areas**, with one dedicated to **environment & ecosystems;** but also on ethical governance, data policy, gender, education & research, communication and information, economy and labor, health and social wellbeing, among others, **with a view to securing a development and use of AI to deal with both climate change consequences, but also the impact of AI on climate change;**
- ✓ It calls on UNESCO to develop a **Readiness Assessment Methodology** and a methodology for **Readiness Impact Assessment** of countries willing to do so.



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Readiness Assessment and Ethical Impact Assessment

UNESCO is supporting Africa and SIDS countries to benefit from AI technologies while addressing ethical risks, through 2 ongoing projects funded by Japan and the McGovern Foundation

1. AIM:

- Strengthen capacities and policies in selected countries;
- Protect, promote and respect human rights and fundamental freedoms, human dignity and equality, including gender equality;
- Safeguard the interests of present and future generations to preserve the environment, biodiversity and ecosystems and to respect cultural diversity in all stages of the AI system life cycle.

2. **ACHIEVED:** Two assessment tools developed and published:



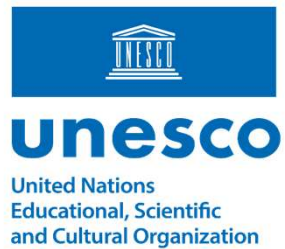
3. ONGOING/PLANNED INTERVENTIONS:

- ✓ Piloting of the **Readiness Assessment Methodology** and of the **Ethical Impact Assessment of AI against the Values and Principles, as well as 11 Policy Areas of the Recommendation**, in the following selected African countries : Botswana, Gabon, DRC, Kenya, Malawi, Mauritius, Morocco, Mozambique, Namibia, Rwanda, Senegal, Sao Tome and Principe, South Africa, and Zimbabwe.
- ✓ National status reports will be delivered to support **institution-building, establishment/revision of regulatory frameworks, and policy innovation** to help countries facilitate the development and use of AI technologies, with a goal to **advance their AI strategies on an ethical basis** for the benefit of all, notably with regards to **environment and ecosystems**.
- ✓ Outcomes to be shared during dedicated fora to be organized in 2024.



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Investing 1 dollar in prevention saves 7 dollars spent after a catastrophic event



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