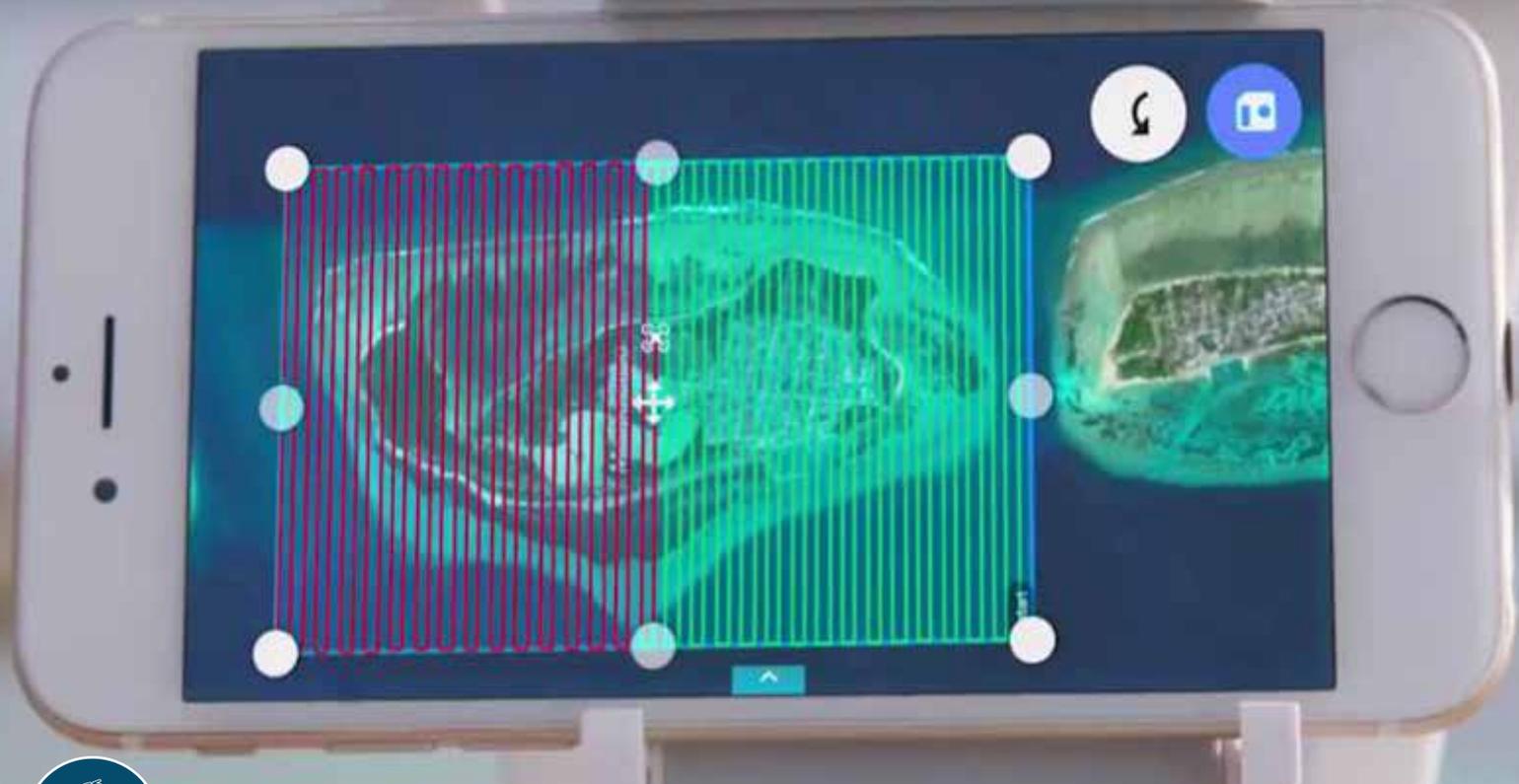




MANAGE RISK, IMPROVE DISASTER RESPONSE



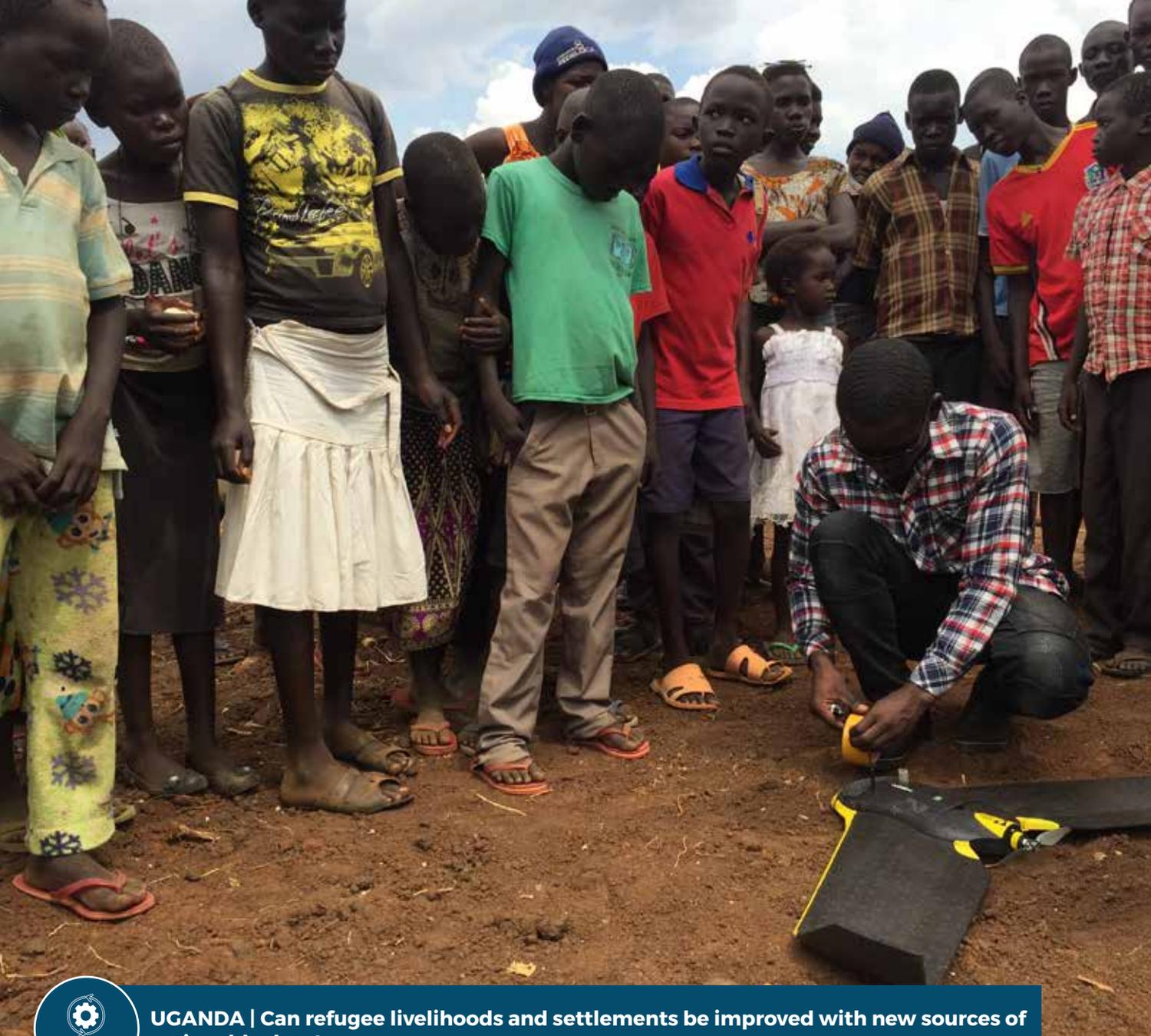


MALDIVES | Can drones empower communities to better prepare for and respond to disasters?

The Maldives is one of the countries most vulnerable to risks from climate change – 80% of its 160+ inhabited islands are just one metre above sea level. Flooding due to rising sea levels threatens the livelihoods of almost all 409,000 Maldivians. Creating risk maps of these islands is a big challenge, as it usually takes about a year to map 11 islands. Risk maps are an important source of data, as they can help identify changes to physical vulnerability and provide vital evidence for planning, mitigation, response and recovery initiatives. In late May 2016, UNDP Maldives collaborated with leading drone company DJ, and robotics solutions provider WeRobotics, as well as nearly two dozen Maldivian government, private sector and non-governmental organizations, to carry out a scoping mission exploring how aerial robotics technology can improve environmental management and enhance resilience to natural disasters.

A few months later, the team used a drone to map an entire island in one day. The Government of Maldives and the island communities have been engaged to integrate drones into their disaster preparedness and response operations. At least 20 islands in the Maldives will be equipped with drones, and local emergency officials will receive training from professional first responders on how to use them. Information captured by drones will help the Maldives prepare for extreme weather intensified by ongoing shifts in climate. It will enable locals to create their own maps and compare images over time to better understand how their local environment is changing. Pending further exploratory missions on risk mapping and search and rescue, along with further pilot trainings at the community level, this work is expected to be scaled up in the Maldives and replicated to other countries.





UGANDA | Can refugee livelihoods and settlements be improved with new sources of actionable data?

The Oruchinga Refugee Settlement in southwestern Uganda's Isingiro District is home to more than 5,000 refugees and a haven for thousands of refugees over the past four decades. Uganda's progressive refugee policies allocate land to families as a way of enabling self-reliance. As with the rest of Uganda, changing climate and disasters threatens this self-reliance. To support families living in the refugee camp to plan their crops and to inform decisions of the settlement management regarding community infrastructure and land management, UNDP and UNHCR are working on bridging the humanitarian-development divide. We tested whether drones can generate actionable data.

The drone was operated by remote sensing specialists from the Office of the Prime Minister. It produced high-resolution aerial photomosaic data. The mapping took place as a participatory exercise, with residents identifying community infrastructure, homestead plots and crops.

The newly generated maps will be overlaid with information on hazards, risks and vulnerabilities along with historical data on rainfall so the community, and its leaders, can make evidence-based decisions on what crops to grow, community infrastructure and land management.

Representatives of the Office of the Prime Minister's Settlement Commandant highlighted that current maps are outdated and not conducive to participatory decision-making. This led to the UNHCR-UNDP experiment to assist government partners in resettlement planning as they have a complete picture of the settlement's land use.

The mapping exercise is supported by UNDP's Integrated Climate Risk Management Programme funded by the Government of Sweden. It promotes approaches aimed at integrating climate risk management approaches into development planning, with a focus on innovation.





TANZANIA | Can drones empower communities to better prepare for and respond to disasters?

Tanzania's economy is highly vulnerable to the adverse impacts of climate change and extreme weather events. Meteorological stations across the country have reported steady increases in temperatures over the past 30 years. Recent severe and recurrent droughts have interrupted the reliability of the country's hydroelectric power supply, and water levels of Lake Victoria, Lake Tanganyika, and Lake Jipe, three of Tanzania's vital natural reservoirs, are facing dramatic declines. Sea water intrusion into water wells along the coast of Bagamoyo town and the inundation of Maziwe Island in Pangani District are of further concern. These threats exacerbate the urgent need for more comprehensive, accurate, and readily available information about natural hazards and climate change threats, to address adaptation challenges and enhance support for planning and mitigation activities.

Improving Tanzania's Early Warning System (EWS) is a critical component of adapting to a changing climate. This project is focused on strengthening the capacity of national and subnational entities to monitor climate change, generate reliable hydro-meteorological information (including forecasts) and combine this information with other environmental and socio-economic data to improve evidence-based decision-making for early warning, adaptation responses and planning. UNDP is

working with the Tanzanian Government to establish a Climate Information and Early Warning System as part of its National Adaptation Programme of Action (NAPA). This system will increase the local community's resilience to the impacts associated with weather and climatic disasters by engaging local government and youth to crowdsource hazard information from local jurisdictions. Establishing a crowdsourced hazard feedback system in Tanzania is another way to enhance the local communities' adaptive capabilities to cope with the challenges brought by climate variability. Women's involvement throughout the rollout will be key to the success and impact of the new system.

Recently, free mobile phones have been provided to local farmers so they can directly channel information on climate, weather and related disasters. Provincial and district officers, municipalities, civil society (women and youth associations, NGOs, media, farmers' associations) and the private sector are also being engaged as end users to provide inputs to the project's design. Other agencies working to strengthen climate information and early warning through this initiative include the Government of Tanzania's Ministry of Water, Tanzania Meteorological Agency, Disaster Management Department, and the Global Environment Facility (GEF).



SCALE

UNDP Kosovo*, together with UN Global Pulse, tested a hypothesis to improve emergency service providers' response times. We analysed anonymized emergency call records to 112. These calls were emergency calls made in the municipality of Pristina between 1 January 2014 and 31 October 2015, and cover a wide range of incidents. The analysis aims to provide the emergency responders with an understanding of what emergencies occur, where and when, in order to pre-position scarce resources, make responses more effective, and reduce response time. As a first step, we mapped temporal trends of demand for various emergency services, such as the ambulance, police, or firefighters. In the second stage, planned for early 2017, we will map the spatial distribution of the calls through an interactive platform developed in cooperation with a local NGO, Open Data Kosovo.

Driven by a hypothesis that 112 calls can be an indicator of security and safety trends and can be used for optimizing emergency response, the first phase of the analysis suggests that this is a valid proof of concept. Moreover, it is clear that big data analysis requires a fraction of the cost of traditional surveys or mapping methods. The emergency services in the city now have a big data analysis of 22 months' worth of emergency calls, providing insight and trends across a variety of incidents over time.

*under UNSCR 1244

