Resilience Academy

Resilience Academy (RA) is the World Bank led university partnership and service delivery program aiming to improve digital skills, competences and employment of the African youth for more effective disaster risk management

By 2050, over 60% of the African population will be living in the cities, which are increasingly vulnerable to disasters and risks posed by climate change. One of the crucial impediments for improved management of disasters in rapidly growing cities is lack of updated digital data of climate risks.

Resilience Academy trains young people with tools, knowledge, and skills to address the world's most pressing urban challenges and to discover solutions for resilient urban development.

We use open, affordable and locally adaptable tools and technologies, such as drones, smart phones and open source software. New data and improved knowledge is created through innovative community mapping initiatives aimed at better quality risk identification, risk mapping and management.

Resilience Academy offers digital solutions for:

- Geospatial climate risk data collection, analysis and data sharing though open-access platforms

- Digital data collection and validation services for various clients with local students and mappers using local approaches of community mapping, affordable mobile tools and open-access Earth Observation data,

- Research and innovation opportunities for companies, governments and communities to pilot novel data and technology solutions

- Online and hands-on skills training at local academic institutions for long-term employment impacts and growth of the local talent.

Resilience Academy has been operational in Tanzania since 2018 as a cooperation between the World Bank, the universities and the national and international partners of the Tanzania Urban Resilience Programme (TURP).

Tanzania Resilience Academy is locally led by four academic institutions: Ardhi University (Dar es Salaam), University of Dar es Salaam (Dar es Salaam), Sokoine University of Agriculture (Morogoro) and State University of Zanzibar (Zanzibar), with secretariat support from the University of Turku (Finland).

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Services of the Resilience Academy

Open data

1 Climate Risk Database (CRD)

CRD is an open access geospatial data repository, which supports universities' skills training, e-learning delivery, research and innovation actions and hands-on disaster risks decision- and management practices.

CRD is a backbone to data-driven service infrastructure of the Resilience Academy:

https://geonode.resilienceacademy.ac.tz/

Community mapping

2 Mass-internships Program

Under professional supervision of the university experts and community mapping partners, students collect and validate missing data and analyse geospatial risk information for improved decision-making and DRM solutions.

Internships feature industrial placement of 20-200 students for a duration of 4-12 weeks and expose them to practical geospatial data collection and analysis tasks in both field and lab settings (as appropriate).

Remote working
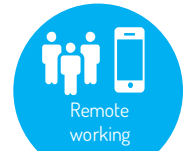
3 Digital micro-tasking

Micro-tasking is particularly efficient for partners and clients who need to collect and process digital data and need local data collection or validation integrated into the work process as micro-sized tasks.

Students can be mobilized to tasking via online platforms with micro-payments integrated. Tasking can be distant or based on field data collection. Skills development can be integrated into the work processes together with the university experts.

Digital skills

4 E-learning

E-learning resources facilitate uptake of relevant hands-on data and risk management skills and competencies of the university teachers and students and Resilience Academy partners.

Materials are packaged into 'micro-sized MOOCs', which are open-access through a learning platform Digicampus. These assets can be locally used in different courses at the universities and offered as training sessions for the practitioners
https://digicampus.fi/course/index.php?categoryid=62

Low-cost tech
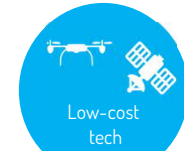
5 Research and Innovation

R&I partnerships offer opportunities to pilot "out-of-the-box" service solutions, which reduces the risks often associated with scaling data and technology solutions

These partnerships provide university staff and students key opportunities to participate in cutting edge research and innovation solutions with various clients and stakeholders.
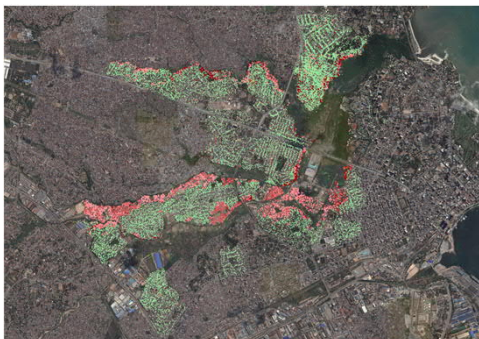
The RA Secretariat coordinates the planning and implementation of the key services of the Resilience Academy and disseminates the impacts and opportunities for the beneficiaries and new clients. The secretariat consists of experts from the Tanzanian Universities, who are responsible for the local community and data collection and training activities with local host organizations, and a team of experts from the University of Turku (Finland) and the World Bank coordinating the overall service flow, financing and research and innovation actions.

RA cooperates with the University of Twente (Netherlands), TU Delft (Netherlands) and TU Dortmund (Germany).

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Use cases and resilience impacts in the society

## Case: Community Asset and Threat Mapping

Local university students' interns engaged in the identification of the flood risks areas in 228 subwards of Dar es Salaam in 2018. Under the leadership of the local ward leaders students and community members mapped vital community assets in each subward. Under the supervision of the local NGO Open Map Development Tanzania (OMDTZ) a total of 228 maps were produced to help Deltares to work with the communities in the Msimbazi Basin to create resilience plans. This mass-internship impacted over 440 students, who learned digital skills in mapping urban risks and communities obtained hands on skills towards improved management of flooding.

RA client organizations:

Case: Soil mapping

Student teams gathered 643 soil samples across Dar es Salaam in October 2018 in order for JBA Consulting and the World Bank to produce soil maps for improved geomorphological and sediment modeling of the rivers. Under the supervision of the OMDTZ, students worked in teams of 5 persons for 4 week's to collect soil surface and sediment samples for further analysis, which involved sieving samples to separate sediment particles by size and weigh the resulting fractions.

DETAILED MAGOMENI AFTER RE-DIGITIZATION

Buildings of Magomeni
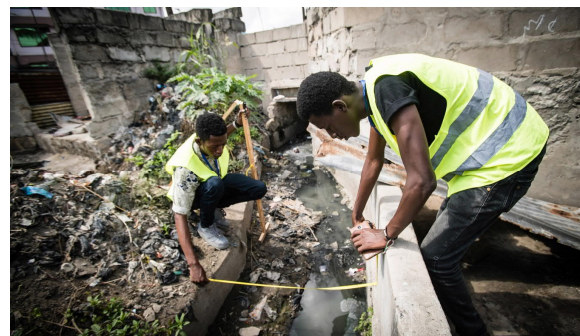
Case: Buildings Footprint Digitization

Since 2017, hundreds of university students have been digitizing building footprints of Dar es Salaam in order to help to map the development of the urban settlements and identification of urban planning challenges. In 2018, students mapped nearly 300 000 buildings during a time span of 8 weeks for the local governments in Dar es Salaam

RA student host organizations:

Case: Data Visualization Challenge

Resilience Academy organizes Data Visualization Challenges for the university students, who respond to various real-world data visualization needs with innovative ideas. One of the 2020 challenges addressed the importance of green environments for urban life quality in Dar es Salaam and Zanzibar. Students worked in groups and used data sets in the CRD in combination to create innovative solutions for the clients.
https://resilienceacademy.ac.tz/dataviz/

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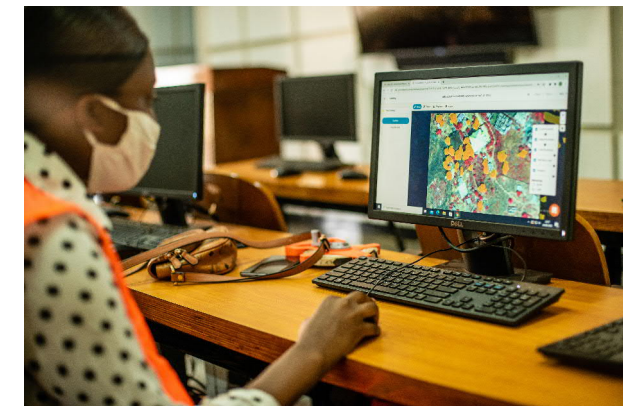
# Use cases and resilience impacts in the society

Case: Micro-tasking for validation of the World Settlement Footprint 3D (WSF-3D) data

During the COVID-19 outbreak 120 Resilience Academy students worked online for four weeks to collect training and validation data for the production of the World Settlement Footprint 3D (WSF-3D) data set. Micro-tasking was limited to 2 hours of daily work with mobile payment compensation to the students based on the quality of the work completed. The data was produced by DLR and the tasking was organised jointly between Mind Earth and the World Bank. A total of 159,490 buildings were validated by the students. The data collected contributed to the calculation of missing local height for all identified vertical building in the The World Settlement Footprint 3D data.

Case: High-precision GPS surveying

In 2018, a student project was set up in Tanzania, as part of a longer collaboration between Delft, University of Technology, and a local mapping service provider, Open Map Development Tanzania (OMDTZ). Students set out to investigate with what accuracy and precision, geographical locations and elevation could be measured with a new 300 USD device that can establish surveys from a smartphone, and what it would entail to establish use cases in a city such as Dar es Salaam. This project led to OMDTZ harnessing this method and establishing it as a regular service. Within one year, OMDTZ was able to team up with Deltares, a Dutch knowledge institute, delivering consultancy services on flood risks, to deliver a first product from it: establishment of about 80 river cross sections with solely local people, local devices, and open knowledge.
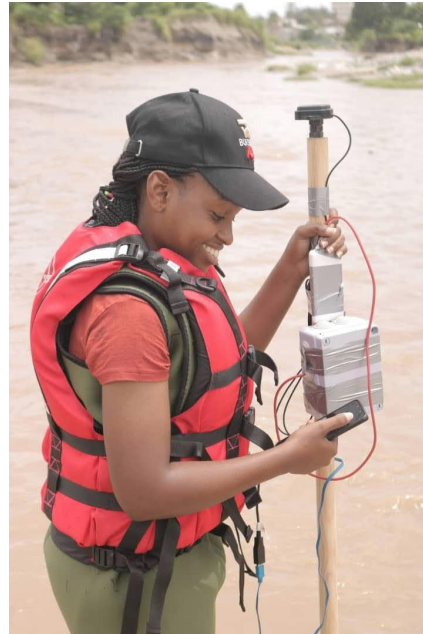
Interested in the Resilience Academy services?

Resilience Academy offers partners and clients opportunities to

- Collect missing geospatial risk data based on local talent and affordable tools and devices, simultaneously catalyzing local skills growth and employment opportunities for youth

- Outsource digital data collection and validation processes as online micro-tasking to local students and youth for income generation and employment

- Reduce investment risks related to digital data and technology solutions by piloting novel data driven solutions with the Resilience Academy experts and students and their international partners

- Train youth, your staff and stakeholders with geospatial and climate resilience skills using e-learning resources provided and delivered to you by the local universities and their experts

Contact us for tailored solutions matching your needs

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