Resilience Academy

Resilient urban solutions begin with education

UR West and Central Africa
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Climate change and floods make cities vulnerable

SDG 11 **INCLUSIVE SAFE RESILIENT**

Example: Dar es Salaam

1 Rapid urban growth

2 **80%** unplanned

3 Infrastructure gap

4 **10%** Sewage service

The
approach

Resilience
Academy

SDG 4   QUALITY
LEARNING
OPPORTUNITIES

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

The Strategy

Resilience Academy uses open, affordable and locally adaptable tools and technologies, with participatory mapping approaches to make learning widely accessible

Digital skills and services of Resilience Academy

1 Climate Risk Database (CRD) with open access risk information

2 Online, open access learning materials and courses

3 Student internship and industrial training services

4 Research, innovations and partnerships

Tanzania Resilience Academy

Ardhi University (ARU)
University of Dar es Salaam (UDSM)
State University of Zanzibar (SUZA)
Sokoine University of Agriculture (SUA)
University of Turku (UTU, Finland)

University of Twente (Netherlands)
Delft University of Technology (Netherlands)
Technical University of Dortmund (Germany)

Led by **four Tanzanian universities in coordination with** the University of Turku

In partnership with

UNIVERSITY OF TURKU

UNIVERSITY OF TWENTE. | ITC

TUDelft Delft University of Technology

WORLD BANK GROUP

Climate Risk Database

"Access to digital data sets is a pre-requisite for understanding risks and developing evidence-based solutions for resilient urban development"

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Climate Risk Database

"The catalyst for resilient urban development in Tanzania"

Climate Risk Database (CRD) is a digital geospatial data repository which **supports research, education, and disaster-risk management practices**

To access CRD: https://geonode.resilienceacademy.ac.tz/

CRD of Dar es Salaam/Figures/2019

CRD Geonode Map Service established in March 2019
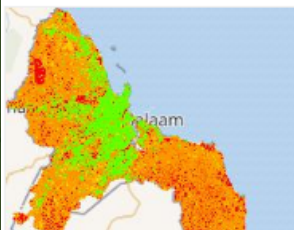
>50 digital data sets openly accessible

>150 students trained with data collection and management skills

For developers: https://github.com/resilienceacademy/geonodera

based on Open Source technology: http://geonode.org/

🖼 **Dar es Salaam Land Use and Land Cover of 2016**

The prototype high resolution land cover map at 20-metre resolution is based on Sentinel imagery observations. The main objective of the map release is to collect users feedback for

👤 admin   📅 23 Sep 2019   👁 35   ➦ 0
⭐ 0   📍 Create a Map

🖼 **Msimbazi Digital Elevation Model, UAV 2019**

A Digital Elevation Model of the Msimbazi River. It has a spatial resolution of 0.50 m and is based on imagery collected with a photogrammetric drone. Horizontal datum: WGS84 UTM 37S

👤 admin   📅 23 Sep 2019   👁 31   ➦ 0
⭐ 0   📍 Create a Map
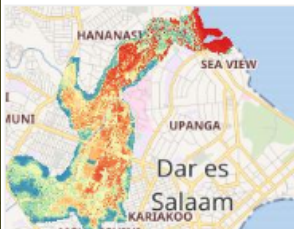
🖼 **Msimbazi Digital Elevation Model, LiDAR 2019**

A Digital Elevation Model of the Msimbazi River. It has a spatial resolution of 1 m and is based on data collected with a LiDAR drone. Horizontal datum: WGS84 UTM 37S Vertical datum:

📝 **Dar es Salaam Land Use and Land Cover of 2010**

No abstract provided.

Academic modules for online learning

"Resilience Academy builds online learning materials and courses to educate the youth with relevant geospatial and risk management skills and competences"

Resilience Academy

Online course themes:

1. Open data for resilience

2. Flood resilience in a changing climate

3. Community mapping for improved spatial planning

4. Earth Observation for resilience

Example skills training:

Resilience Academy Data Visualization Challenge 2019

https://resilienceacademy.ac.tz/datviz

URTZ2019

Resilience Academy

The Statistics

260 Student participants applied for the challenge

107 Ardhi University

68 State University of Zanzibar

29 Sokoine University of Agriculture

55 University of Dar es Salaam

01 Mwalimu Nyerere Memorial Academy

Example course: Community Urban Risk Mapping

https://canvas.instructure.com/courses/1503162
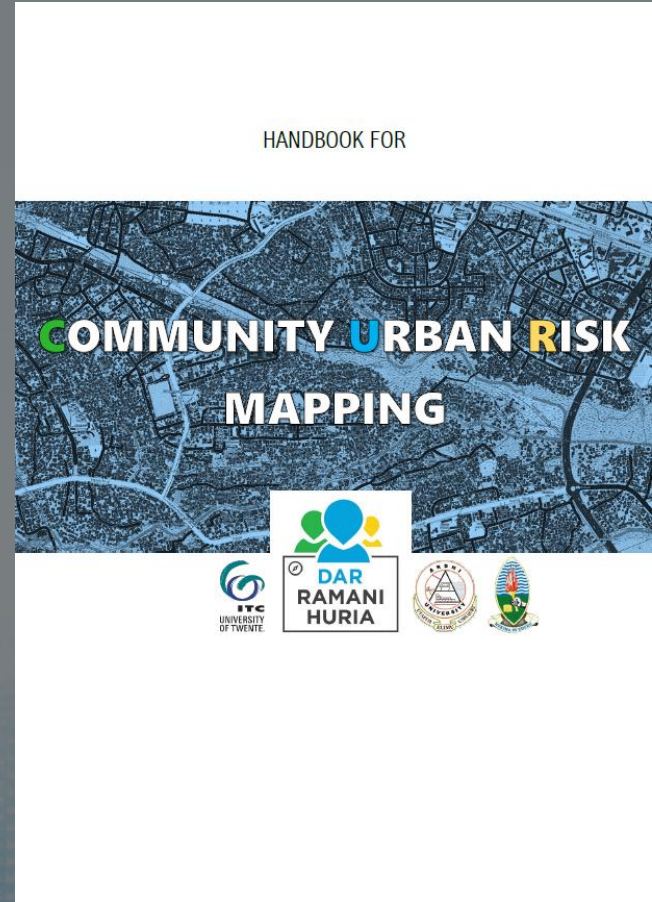
Digital assets developed in Resilience Academy are placed into Tanzanian universities' research and teaching practices, to provide society with community mapping and data analyses services for improved resilience management

Expected outputs in Tanzania from 2020 onwards:

> 40 academic courses with improved contents

> 100 university staff members with Resilience Academy management and expertise skills
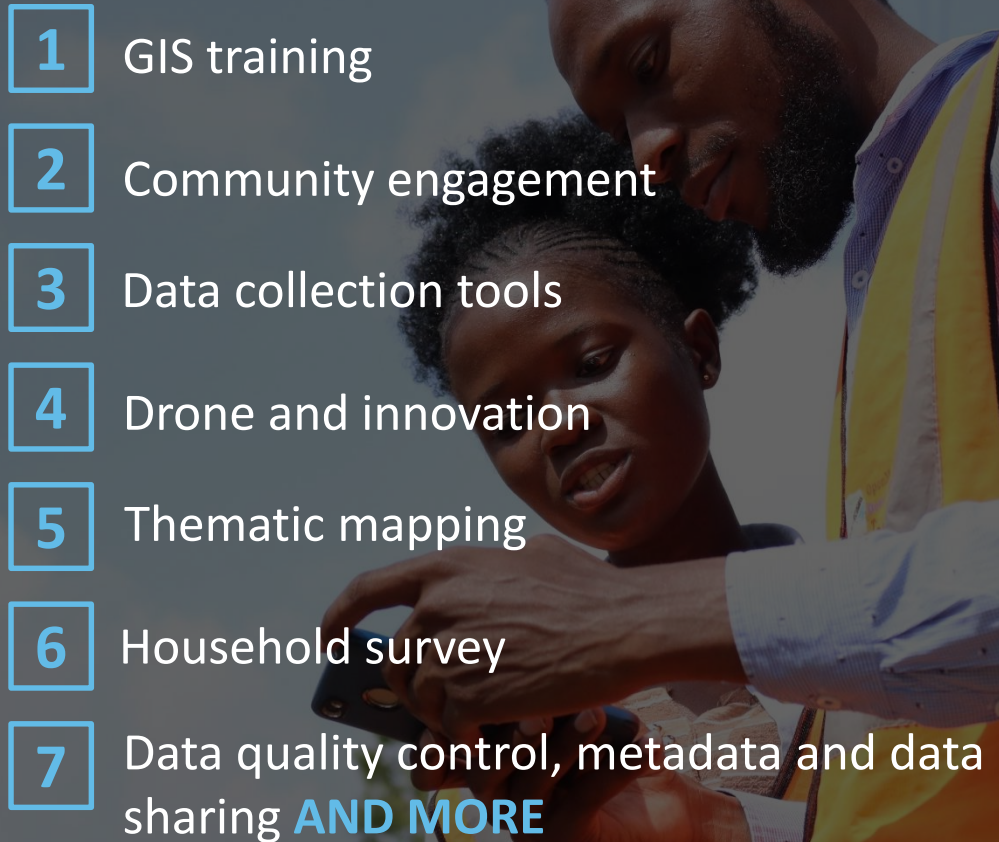
> 400 students annually exposed to improved training

Internship programme

"industrial training exposes students to geospatial skills to map the unmapped and make community assets visible"

Skills/ Knowledge

1 GIS training

2 Community engagement

3 Data collection tools

4 Drone and innovation

5 Thematic mapping

6 Household survey

7 Data quality control, metadata and data sharing **AND MORE**

Example: State University of Zanzibar in 2019

Students: 50

Time: 8 weeks

Shehias: 42

Community members: 300+

Amenities: 1713

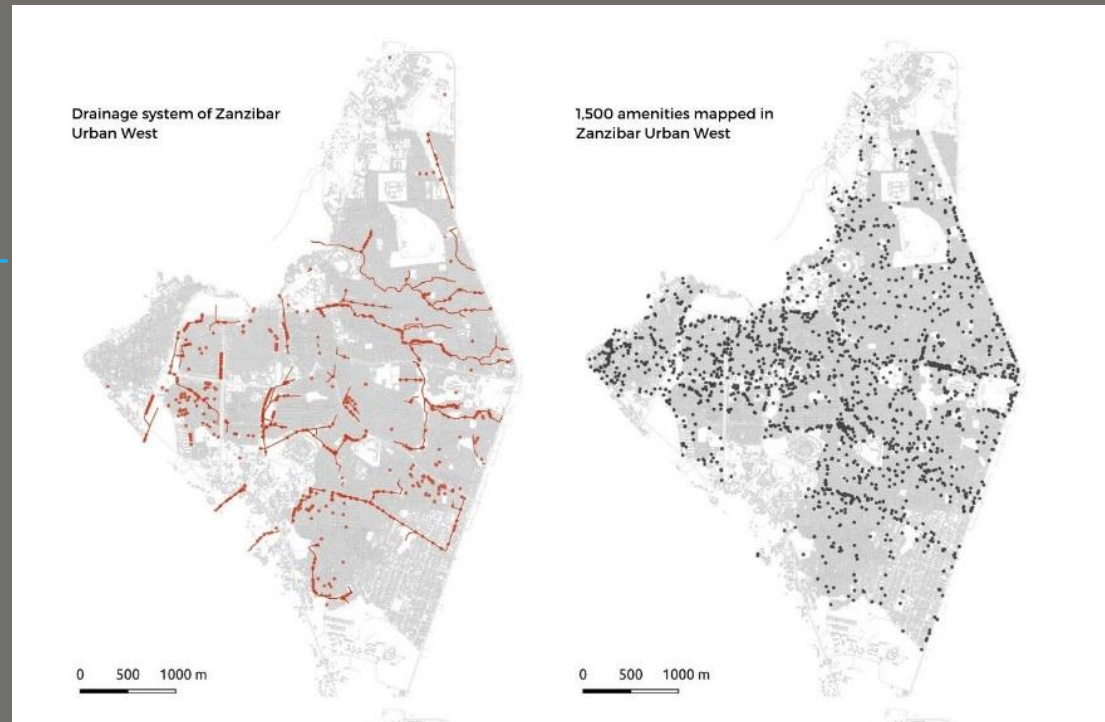km of roads : 150

Buildings: 35,000

Businesses: 5801

Drainage system of Zanzibar Urban West

1,500 amenities mapped in Zanzibar Urban West

0   500   1000 m

0   500   1000 m

Resilience Academy

Students placed for internships/industrial training to collect risk data

Resilience Academy

1 > 1000 Tanzanian university students since 2016

2 Digital technology and community mapping skills in practice

3 Data/knowledge gap reduced with openly accessible data sets

4 Practical work life skills for improved employment

Student Research

"New knowledge, innovations and skills are generated from the research of the students. This creates the foundation for next generation of urban resilience experts"

Themes:

- Data sharing technologies
- Data quality and management
- Urban climate
- Flood monitoring and risk assessment
- Land use/cover changes
- Urban forests
- Mapping cultural and social resilience
- Urban planning/participatory planning
- Earth Observation and machine learning for exposure/ vulnerability/risk mapping

Thank you!

Follow us at:
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