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**The Role of Citizen Science In Building  
Community Resilience: How New Technologies  
Are Facilitating Citizen Science For Building  
Resilience**

# INTRODUCTION

- Citizen science is a concept which is growing fast and gaining popularity in building community resilience in developing countries.
- Great Benefit of Citizen science is its direct connection to the United Nations Sustainable Development Goals which are related to the environment and climate change.
- In Africa, citizen science is producing a growing body of data and inspiring significant numbers of people to connect with local and national conservation issues.

# INTRODUCTION

- The Tropical Biology Association (TBA) is leading an innovative new collaboration of UK and African partners to build the capacity of citizen science leaders in Africa, where there is growing interest and huge potential to use citizen science to collect data on biodiversity for conservation management.

# The Nganyu Rain Makers in Kenya

- An example of collaboration of citizens and scientists to provide community resilience in subsistence farming through citizen science is the Nganyu rain makers of Vihiga county.
- They use shrines which consist of huge and rare indigenous trees inhabited by reptiles, birds and insect whose behaviour is monitored to indicate upcoming weather.

# The Nganyu Rain Makers in Kenya

- The Kenya Meteorological Department, the University of Nairobi, and Maseno University partnered with Nganyu rainmakers to blend Indigenous and conventional weather predicting models in a project dubbed “*Climate Change Adaptation in Africa*”. It was funded by Britain and Canada.
- The forest/Shrine has a rich biodiversity, with 67 different tree species, many birds’ species, reptiles, and insects. It has been designated as a shrine due to its importance to the community.

# The Nganyi Rain Makers in Kenya

- Indigenous forecasting is important to Scientists because it helps them in [explaining] Weather Forecast to the local community.
- The Kenya Meteorological Department recognizes the importance of Indigenous knowledge as being key in helping local communities adapt to the unpredictable climatic patterns.

# What are the main barriers for implementation and scaling up?

- Education/ Curriculum- if the curriculum is not tailored to meet the needs and challenges of the 21st century, then it will hinder citizen science up scaling.
- The curriculum must be intentional and goal oriented.

# Solutions

- The solution lies in transforming the education systems to align them with the 21st century technological advancement. The system can be Competence based education where learners are introduced to relevant skills in Science, Mathematics, Technology, Agriculture and social studies from Pre-school.
- The competency based curriculum is learner centred, learning outcomes put stress on application and creation of knowledge, development of critical thinking skills, creativity, collaboration, communication, technology literacy, media literacy, flexibility, leadership initiative, productivity and social skills



# Competency Based Curriculum

- An Example of CBC and the subjects taught in Kenya. The structure is 2-6-3-3-3.
- Pre-primary -2 years Subjects to be taught include Language Activities, Mathematical Activities, Environmental Activities, Psychomotor and Creative Activities and Religious Education Activities.
- Lower Primary -3 years (grade 1-3) Subjects include Kiswahili, English, literacy, and mother tongue, science, social studies and agricultural activities.

# Competency Based Curriculum

- Upper primary -3 years (grade 4-6) Subjects: Kiswahili, English, Mathematics, Home Science, Agriculture, Science and Technology, Creative Arts (art, craft and music), Moral and Life Skills and Physical and Health Education, social studies (citizenship, geography and history) with an option of a foreign language (French, German, Chinese and Arabic).
- Junior Secondary- 3 years (grades 7, 8 and 9) subjects include; Mathematics, Kiswahili, English, life skills, health education, social studies, integrated science, Business studies, religious education, agriculture, life skills, sports and physical education), Home science, foreign languages, Kenyan sign language, indigenous languages, visual arts, performing arts, Arabic and computer science will be optional at junior secondary.

# Competency Based Curriculum

- Senior Secondary (grades 10,11 and 12) – 3 years Three areas of specialization which are, arts and sports science, social sciences and Science, Technology, Engineering and Mathematics(STEM).
- The TVET curriculum which is hands on and technical in nature is recommended also



**THANK YOU**

**ASANTE SANA**