

Climate change adaptation in water related disasters

— JICA's approach and practice —

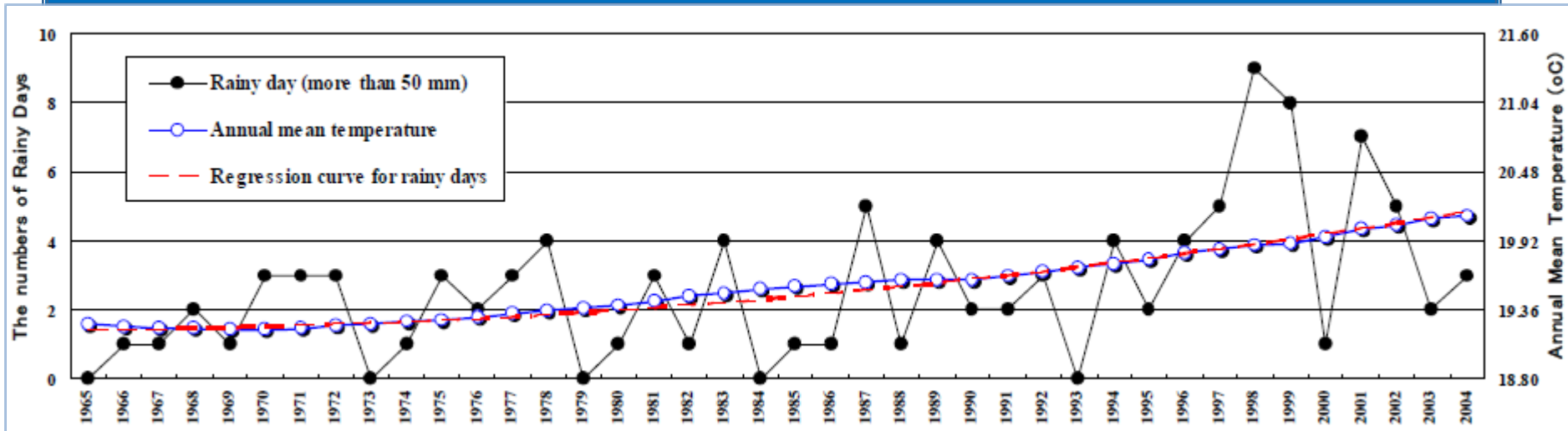
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Japan International Cooperation Agency (JICA)

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Background: Climate is changing

Rainy days and rainfall intensity is increasing in Kericho, Kenya



Planning approach needs to be changed

- **Conventional planning approach**
Past rainfall pattern will not change over time
- **New planning approach** under climate change

Plan and implement infrastructure projects through
predicting future impacts with uncertainty

**Resilient
Approach**

Being Resilient, Goal of flood control is “Zero victim”

◆ There is no option but to live with floods.

● Conventional approach

Long liner bank system
along river from river
mouth to mountain



● Proposed new approach

Multi-layered measures in a river basin

Step 1

Protection of strategic areas by
structures

Step 2

Urban planning and land use regulation
for risk areas

Step 3

Community-based disaster management
(CBDM)

< Climate Change

Adaptation Project >

Objective: To minimize human loss

Historical hydro-meteorological data

Probability analysis on target floods

Runoff and *inundation* analysis

Climate change prediction

Evaluation on impact of extreme events by climate change

Coping mechanism analysis

Target setting

- 1) *Strategic area protection by structural measures*
- 2) *Land use regulation*
- 3) *Community-based disaster risk management (CBDM)*

< Project >

Structural measures

Urban, regional planning (land use regulation)

Non-structural measures (early warning, *evacuation*)

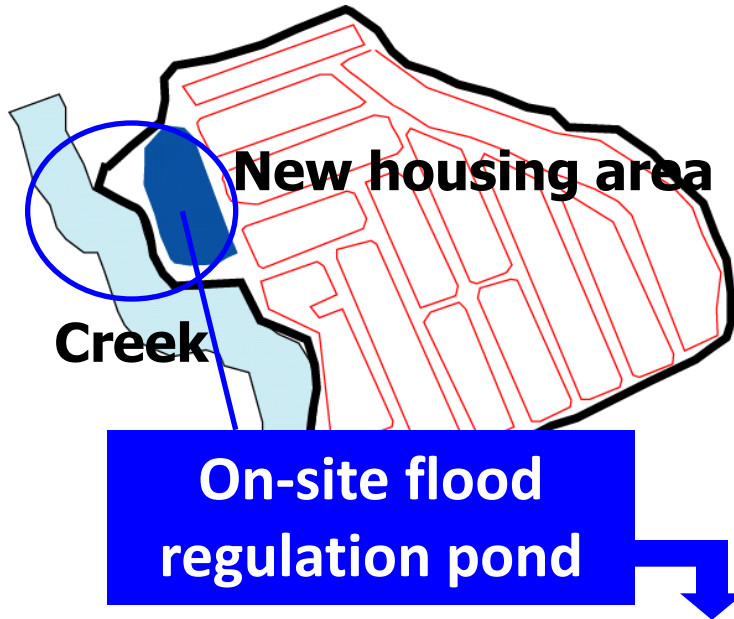
CBDM

Monitoring

Poverty alleviation, vulnerability consideration

Example of adaptation measures

- Urban Planning (Land use control) -



- Offset increment of peak runoff discharge
- Control sediment runoff

Keep certain areas as flood retarding basins allowing inundation

Example of adaptation measures

- Software measures -

Community Hazard Map



River water level
indicator for flood
warning and
evacuation

Example of adaptation measures

Community-based disaster management in Kenya



Embankment improvement



Evacuation road raising

Example of adaptation measures

Community-based disaster management in Kenya



Evacuation drill



Disaster education





*Thank you very much
for your kind attention.*

**Japanese people sincerely appreciate
the condolences and assistance
from African countries.**



Source: World "KIZUNA" Graph, impress R&D