

Pioneering AI-Driven Climate Adaptation for Agriculture In Global South



NEC

Orchestrating a brighter world

The Background

Africa's agricultural systems — particularly cocoa and rice — face mounting threats from climate change, with rising temperatures, shifting rainfall, and soil pressures expected to reshape cultivation in the coming decades. While emissions reduction initiatives and carbon credit trading have advanced globally, adaptation measures have lagged behind, largely due to the difficulty of quantifying their economic return.

Governments, development banks, and private investors alike need clear, data-driven insights to justify and mobilize financing for adaptation. Without robust models, strategies such as irrigation, shifting planting times, or introducing new crop varieties remain underfunded despite their potential to protect yields and livelihoods.

“With ClimateAi, It has become possible to predict the return on investment for climate change adaptation measures, which had previously been challenging, based on data. This conceptual model will change the flow of investment funds towards climate change, which hasn't received adequate investment, and accelerate adaptation.”

- MEGUMI ETO

Director, NEC Corporation

CASE STUDY

The Challenge

Progress on adaptation has been slow in these regions. The primary barrier is the lack of clear, data-driven evidence that can demonstrate the value of investing in resilience.

- Difficulty in evaluating the economic return of adaptation measures.
- Wide variability in temperature, rainfall, and soil conditions.
- Lack of ROI clarity delays funding from international and private investors.

The Solution

ClimateAi and NEC co-developed an AI-driven conceptual model integrating:

- Long-term climate forecasting (multi-scenario) from ClimateAi.
- Agritech expertise from NEC to model crop response.
- Focused analysis on cocoa and rice across Africa.

Adaptation Measures Tested

- Irrigation infrastructure
- Climate-adapted crop varieties
- Adjusted planting calendars

Results & Impact

The NEC–ClimateAi model demonstrated how AI can bridge the gap between climate science and economic decision-making, offering stakeholders a practical tool to evaluate adaptation strategies with confidence.

- **Quantified ROI for adaptation measures** — bridging the gap between climate science and economic decision-making.
- **Developed a decision-support tool** for international organizations, development banks, and agribusinesses.
- **Highlighted cost-effective strategies** to sustain cocoa and rice yields under climate change.
- **Opened doors for public-private investment** by clarifying long-term value creation.

Reaction From Market

The NEC–ClimateAi model was exhibited at international conferences and received positive feedback from potential users.

International Organization

- Possible to utilize it within the HQ division responsible for investment strategy
- Possible to utilize for the project evaluation

Developed a decision-support tool

- From now on, such AI should be utilized in development projects.



“With NEC, we’re converting climate risk into an investable adaptation roadmap for the Global South—using GenAI to pre-test adaptation so every dollar lands where it lifts yields and improves lives. By fusing NEC’s agritech with ClimateAi’s climate-intelligence, we replace guesswork in adaptation measures with ROI-grade evidence.”

- HIMANSHU GUPTA
CEO, ClimateAi