

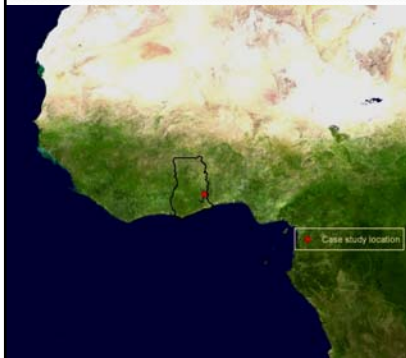
Local Level Adaptation to Climate Change in Dayi River Basin, Ghana.

11 December 2009

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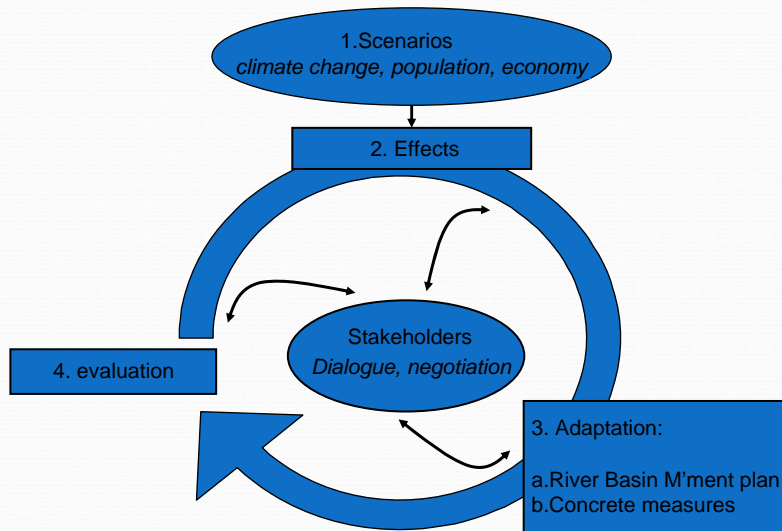


The Dayi River Basin in Ghana



- sub basin of the Volta River Basin
- Originates at Weto mountain Range; drains into Lake Volta

ADAPTS approach



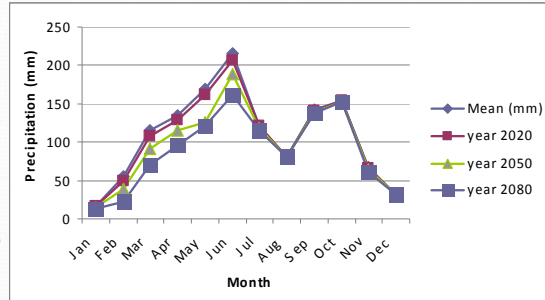
Ghana scenarios + effects

- Low income country, steady economic growth
- 23 million people
- GDP per capita ~ USD 510
- Large agricultural sector: 35% of GDP, 75% export earnings and ~60% of labour force.
- Large scale land degradation, mainly due to deforestation, affecting the GDP.

Ghana - scenarios + effects

- **CC projections:**

- +2.5-3.0°C in 2050
- No agreement on rainfall; but likely to decrease

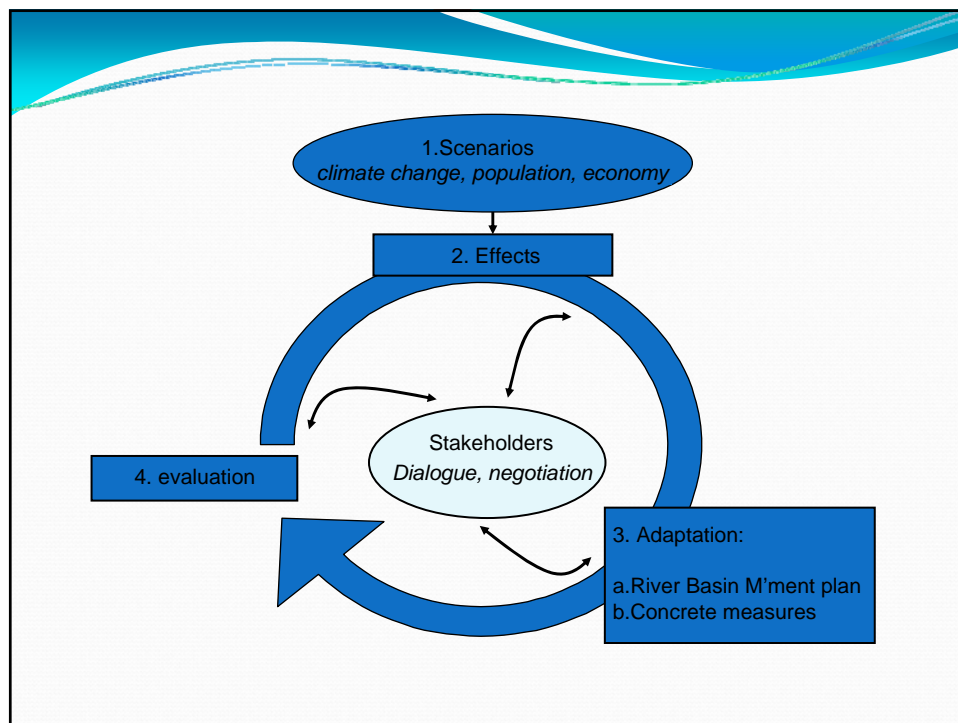


Source: Agyeman Bonsu, 2008

- **Historical trend in case study area**

- Bimodal rainy season; rainfall decreased from 1700 in 1960s to present-day 1400 mm/year
- Prolonged dry season
- Rainfall variability increasing

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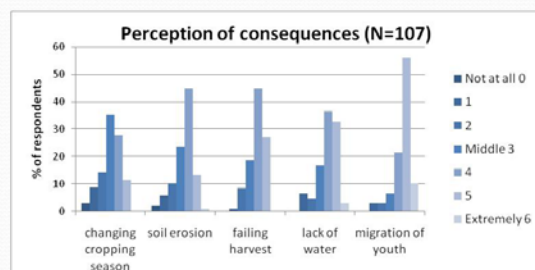
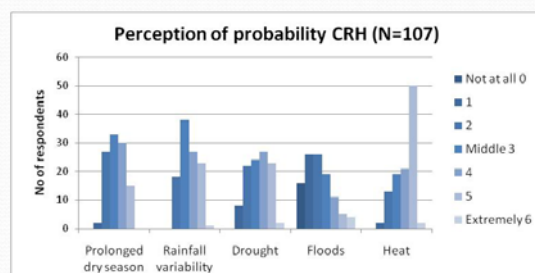


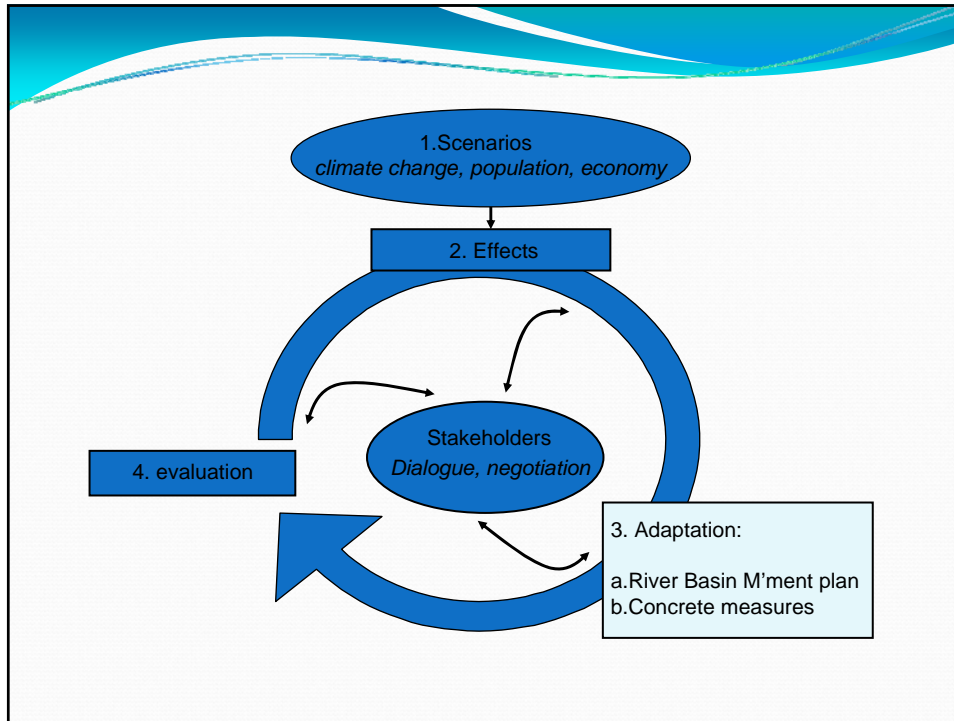
Ghana - stakeholders: local comm

- 97% of land rain-fed; mainly maize and cassava.
 - Used to be male dominated cocoa; now female dominated cassava
- 87% of harvest for commercial purposes; ~75% on total income.
- Climate variation is said to cause crop failure, hunger and water shortage
- Income is decreasing
- From immigration to outmigration

Ghana: risk perception

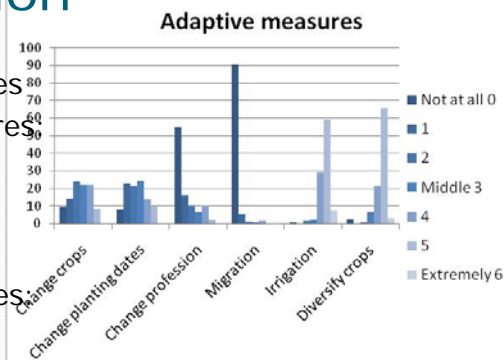
- Probability of 'heat' is highest
- Outmigration of youth is seen as important effect
- Future effects are perceived to go up
- Hunger is the worst thinkable effect of CRHs





Ghana: adaptation

- Collective adaptive measures are in line with dev. measures
 - Reforestation
 - Irrigation
- Individual adaptive measures:
 - Irrigation
 - Diversification + change of crops
 - Outmigration and changing profession are no option
- Motivation to adapt positively correlates to the experience, the cost-effectiveness of the measures and the available means.



Adaptation policy: Water Resource Commission (WRC)

- WRC was created by an Act of Parliament
→ overall body responsible for water resource management in Ghana.
- Created 3 river basin management plans
- Creation of river basin board
- Climate change is taken into account in these plans, detail increases

Concrete adaptation measures: DI



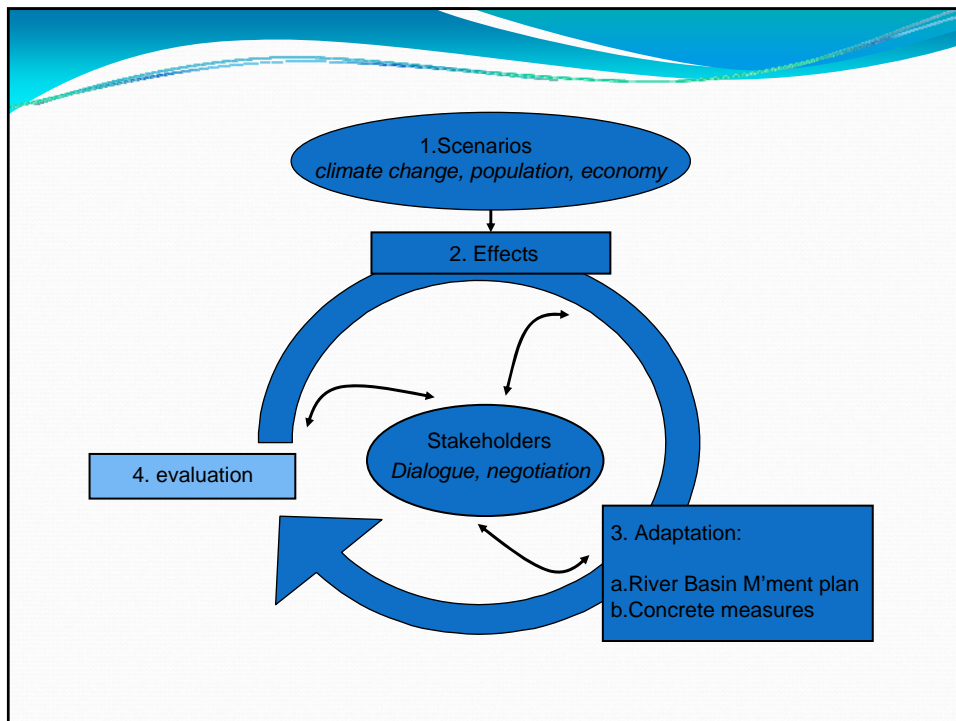
Irrigated vegetable growing by downstream farmer groups

- distribution of motorized pump,
- establishing new market outlets
- strengthening farmer groups/water user association
- developing a buffer zone for the threatened stream areas.

ADAPTS adaptation in Dayi Basin



- Restoring forest vegetation
 - moving food production to valley
 - introducing agro-forestry.
- Small scale irrigation
 - Prevent crop failure
 - Vegetable production
 - Small-scale=controllable
 - Groups share pump
- Establish buffer zones
 - Prevent erosion
 - Prevent pollution
 - Prevent floods



Evaluation

- How much water can be withdrawn –over time?
- Potential upstream-downstream conflicts
 - Quantity & quality
 - Energy vs irrigation
- Buffer zone-irrigation conflicts?

Contact details Ghana case

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Progress ADAPTS

- March 2009 onwards: continuous contact with gov't officials on ADAPTS and progress
- July 2009: baseline socio-economic survey complete
- July 2009: presentation of preliminary results on CC, adaptation and community perception for 50 workshop participants, including minister of water
- October 2009: stakeholder meeting to establish basin board with broad representation (districts, farmer associations, MoFA, etc.).
- Nov 2009: Identification of 6 pilot villages for adaptation
- Nov/Dec 2009: Hydrological study
- Dec 2009: climate projections downscaled for weather generator

Coming years

- DI: create and support new farmer groups on the ground
- WRC: RBMP, based on modelling exercises (WEAP) and ADAPTS output
- ACACIA Water: hydrological modelling; irrigation schemes
- Both ENDS: support stakeholders in dialogue and negotiation
- IVM: climate change modelling; socio-economic development and adaptation surveying,