



ADAPTATION FUND



**Volta Flood and
Drought Management**

Drought risk in the Volta Basin



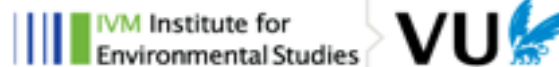
WORLD
METEOROLOGICAL
ORGANIZATION



Global Water
Partnership
West Africa



In collaboration with



Start of the quiz!

Please take a pen and paper, because we will ask 10 challenging questions about the drought risk results for the Volta Basin.

Do not worry if you did not yet look at them / do not have them in front of you, because we will present the figures during the quiz.

What is a drought?

Q1: Which statement about droughts is NOT true?

A: Drought can be seen as a prolonged dry spell

B: Drought is a temporal deficit in the water availability

C: Drought is a permanent feature of the climate

D: A drought can occur in every season

What is a drought?

Q2: Which statement about droughts is true?

A: Drought and water stress are the same

B: Drought can cause water shortage

C: Drought happen only in regions with low water availability

D: Drought and water shortage are synonyms

What is a drought?

Q3: What drives droughts?

A: A shortage of precipitation

B: Low river flows

C: Less water in the soil than usual

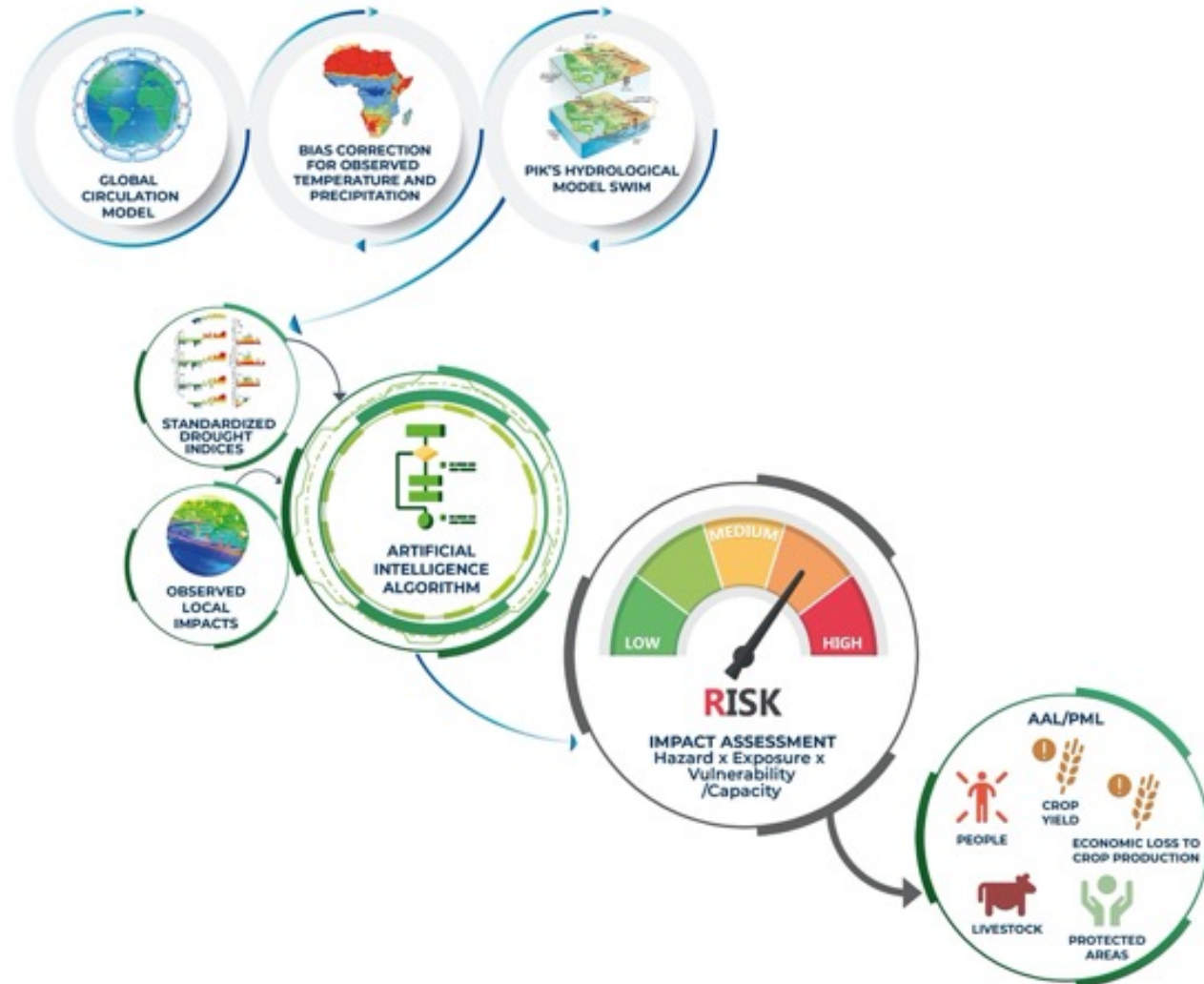
D: All of the above

Estimating impactful droughts and drought risk

While droughts are often seen as prolonged, dryer-than-average hydrological and meteorological conditions (hazard), they do not necessarily cause an impact.

In this research, we defined “impactful droughts” as the hydro-meteorological conditions that are known to cause an impact on agricultural maize production .

Estimating impactful droughts and drought risk



To identify impactful droughts, we combined standardized drought indices with observed local crop yield reductions using AI

From this, we could estimate the likelihood of occurrence of such impactful droughts, and estimate its harmful effects on crop production, livestock and people

Estimating impactful droughts and drought risk

Q4: How did we determine impactful drought for this study?

A: By conditions of less precipitation than normal

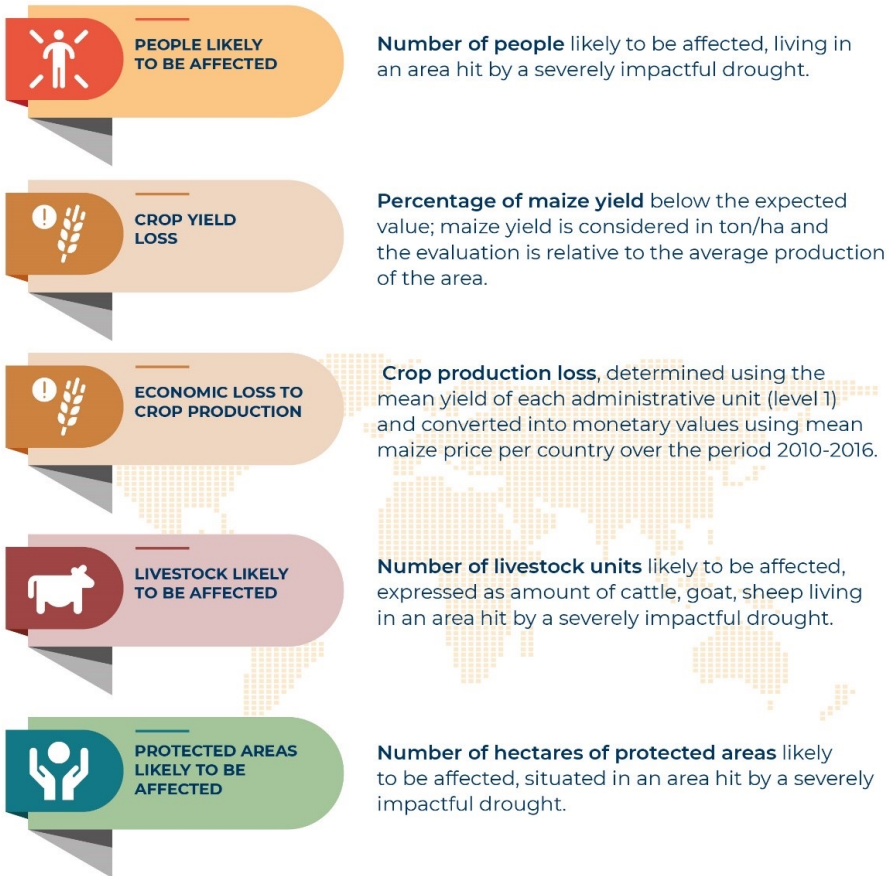
B: By events with precipitation lower than 1 standard deviation below average

C: By years with maize yield a certain percentage below expected value

D: By (news) reports of number of people affected

Estimating impactful droughts and drought risk

THE FOLLOWING SET OF RISK INDICATORS WERE THEREFORE SELECTED FOR DROUGHT



In what follows, we will present the drought risk results for the Volta Basin in terms of agricultural losses, livestock and population potentially affected, and protected areas hit by impactful droughts

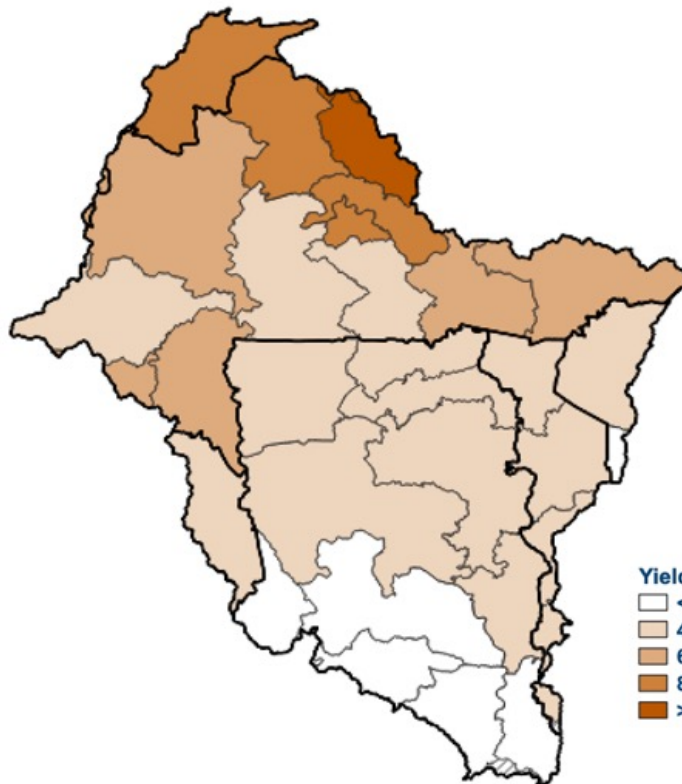
Similar results are produced on national scale, which can also be found in the final report

Annual average crop yield reduction

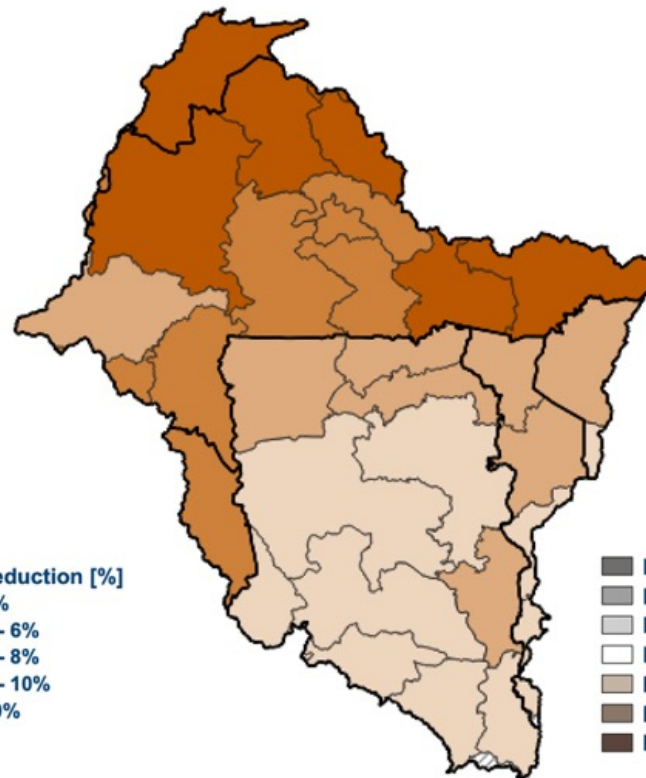
Percentage in Current Climate Conditions

Percentage in Projected Climate Conditions

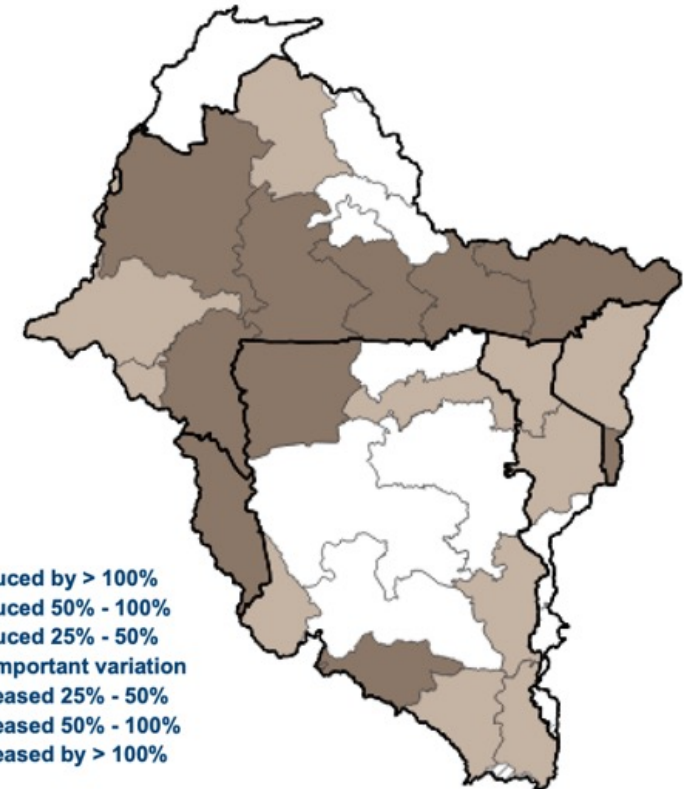
Anomaly in Projected Climate Conditions



Yield reduction [%]
 < 4%
 4% - 6%
 6% - 8%
 8% - 10%
 > 10%



Reduced by > 100%
 Reduced 50% - 100%
 Reduced 25% - 50%
 No important variation
 Increased 25% - 50%
 Increased 50% - 100%
 Increased by > 100%



Annual average crop yield reduction

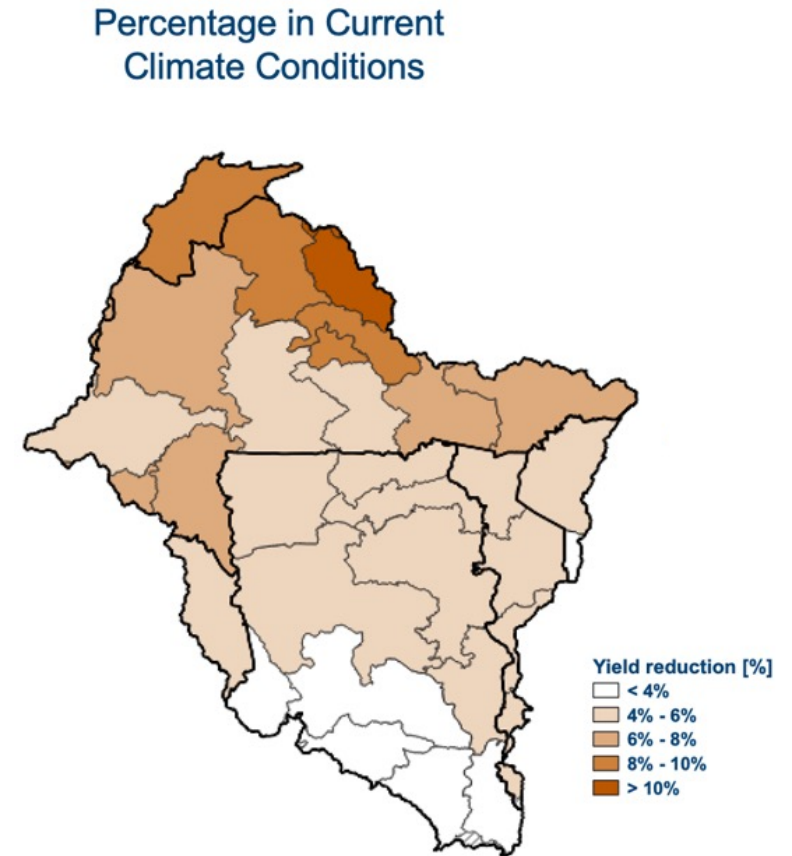
Q5: What do you think is the driving factor behind yield reductions?

A: All of the below

B: Precipitation deficit

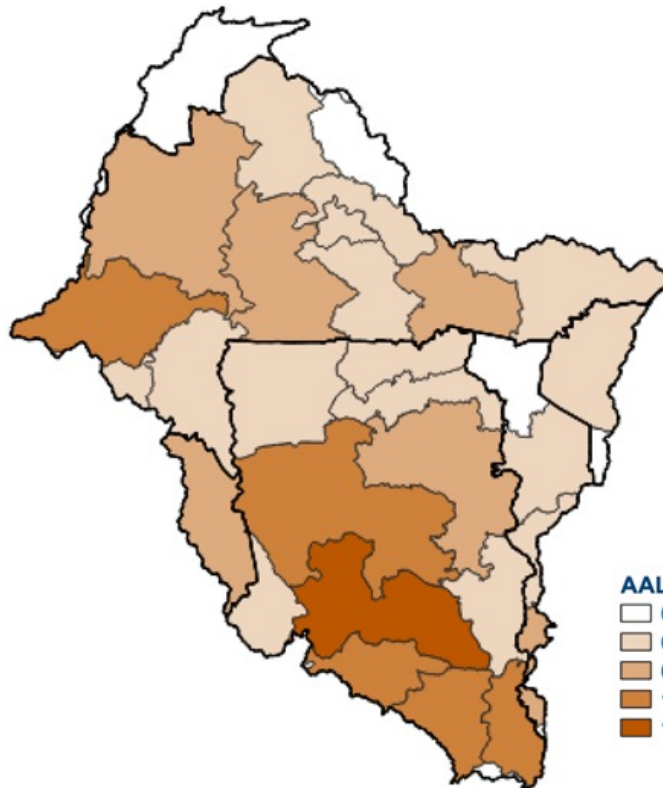
C: Soil moisture deficit

D: High evaporation

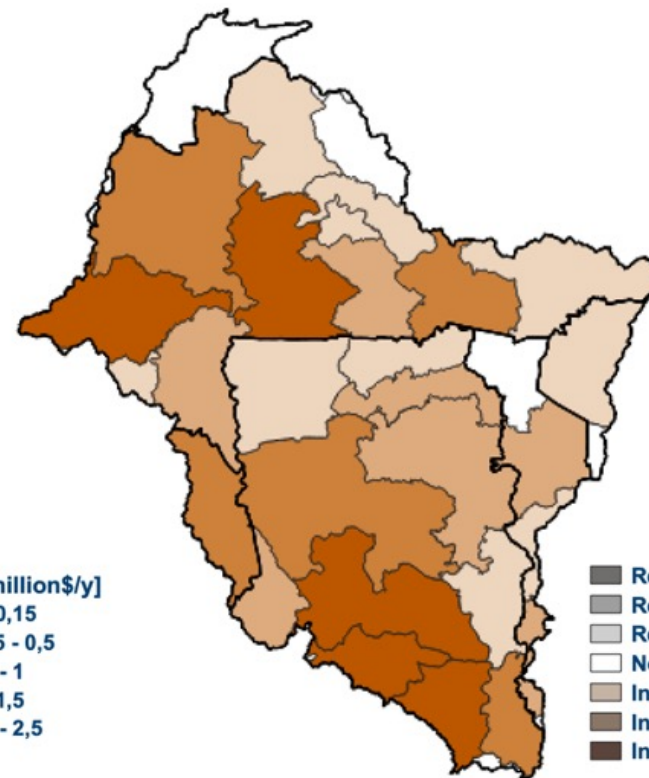


Annual average loss of crop production

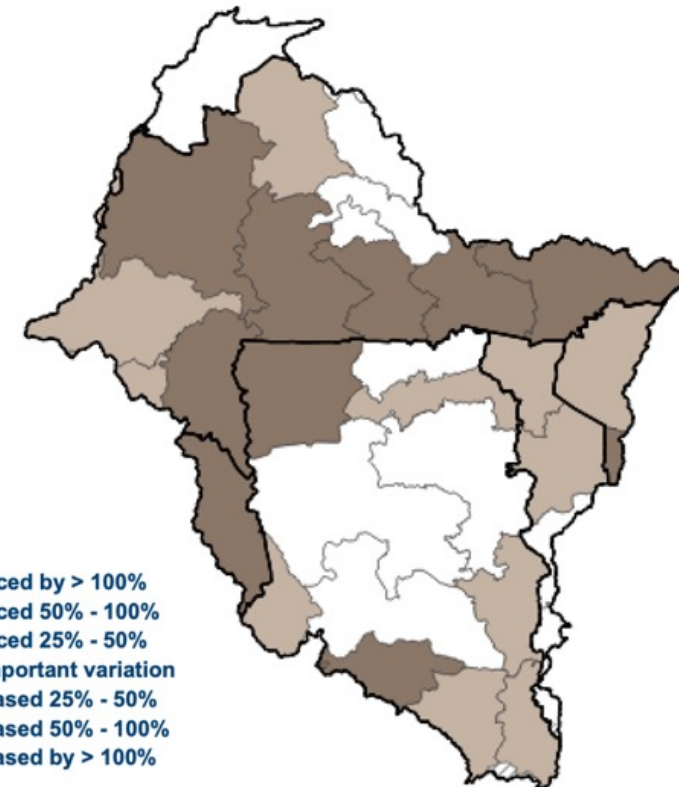
Absolute Number in Current Climate Conditions



Absolute Number in Projected Climate Conditions



Anomaly in Projected Climate Conditions



Annual average loss of crop production

Q6: What do you think is most important for high AAL?

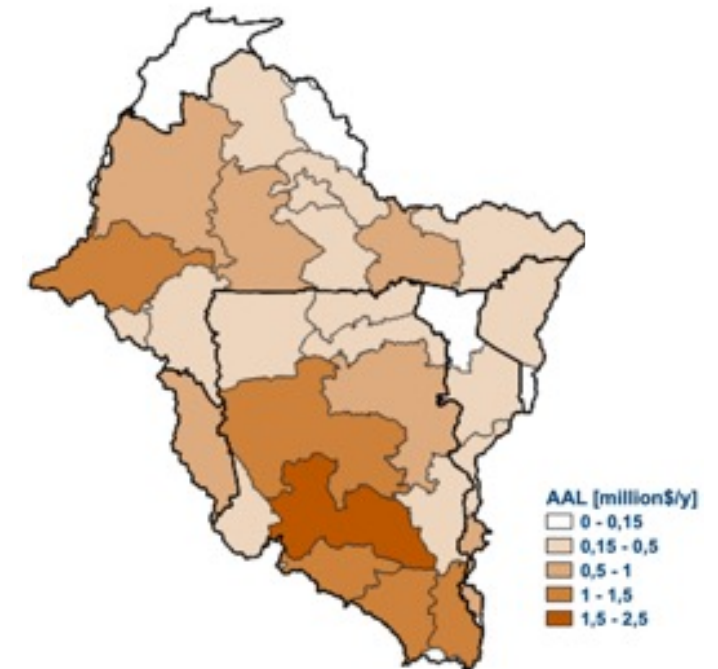
A: A large area under crop production

B: Variable weather conditions

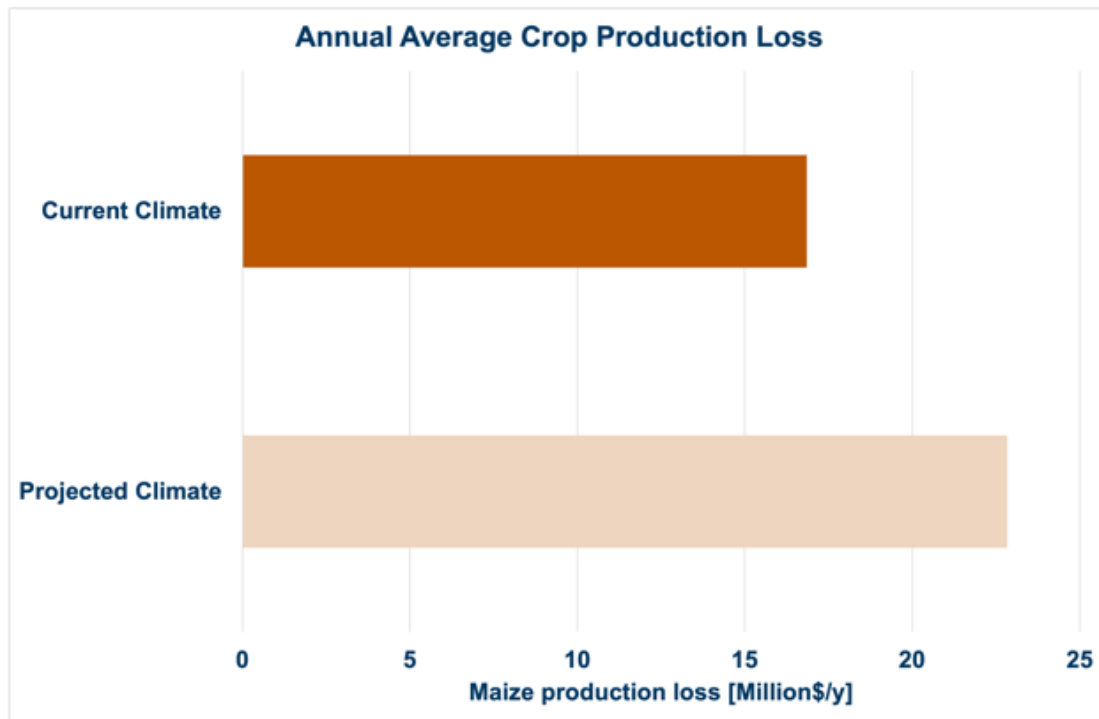
C: A large average crop yield

D: I don't know

Absolute Number in Current Climate Conditions



Annual average loss of crop production



Q6: What is true? The AAL estimates under projected climate increase because:

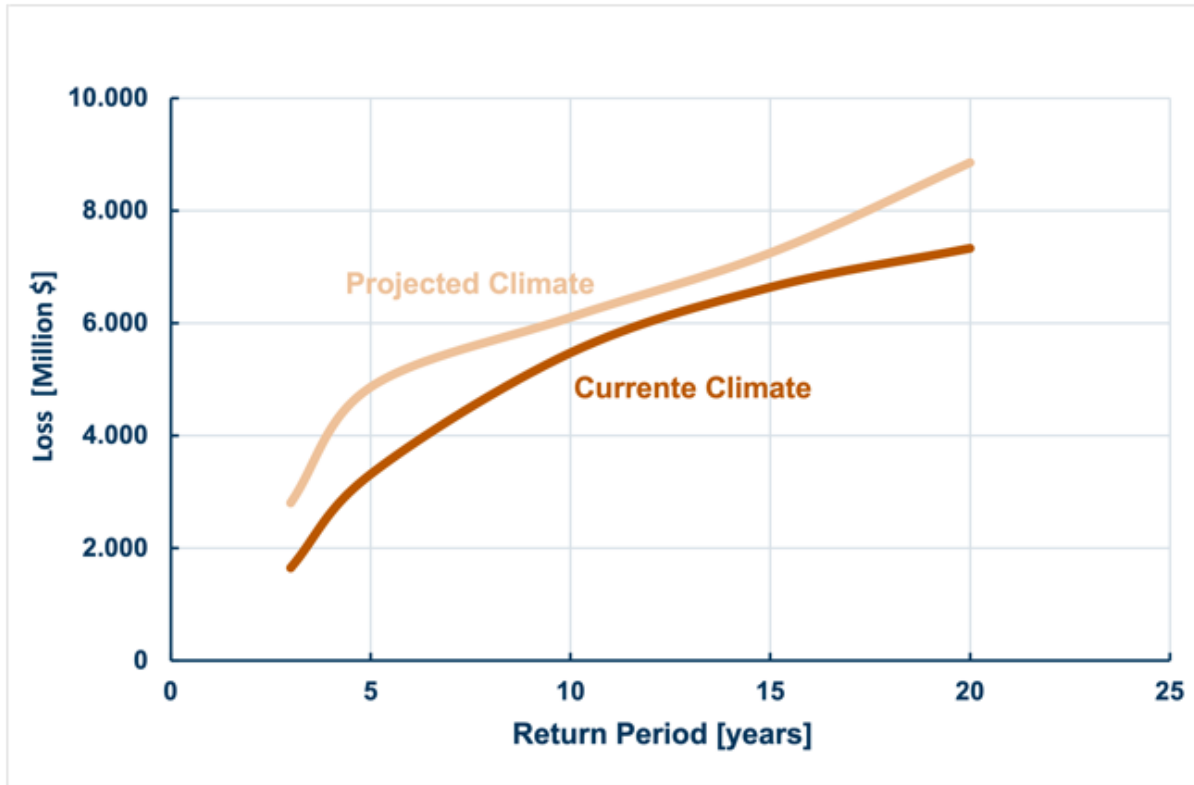
A: more people will be farming maize in the future

B: on average, farms will be more productive

C: prices of maize will be higher

D: there will be more hydro-meteorological conditions leading to reduced yield

Annual average loss of crop production

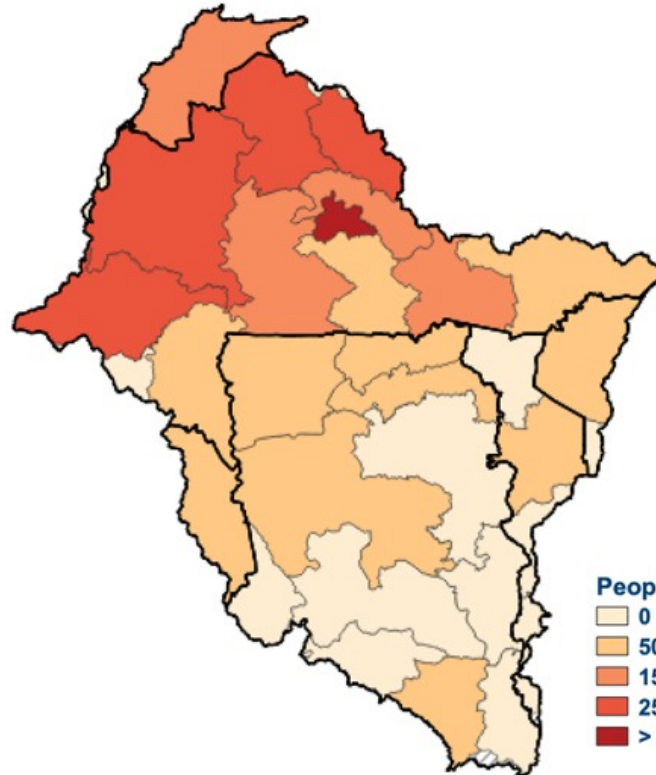


Q7: Consider an event that causes 4M USD loss under current climate. How much would a drought with similar return period cause under projected climate?

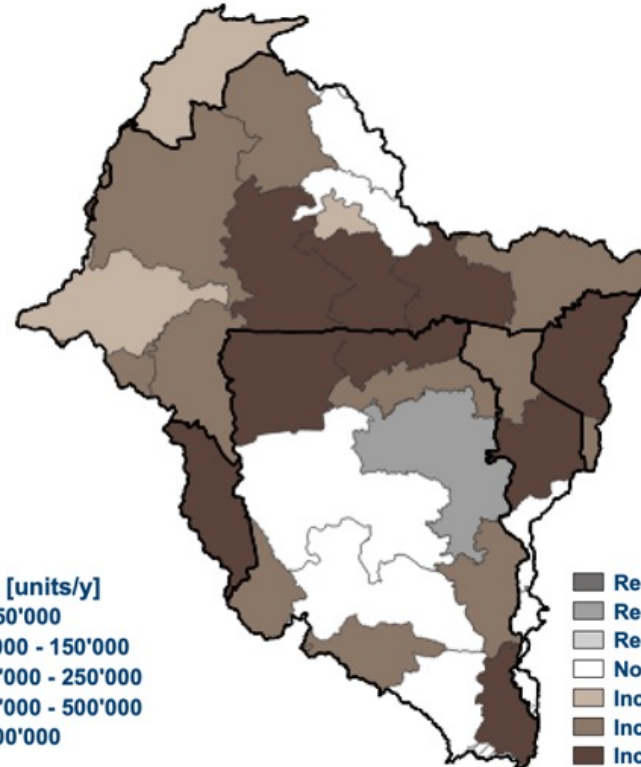
- A: also 4M USD
- B: 5.5M USD
- C: 6M USD
- D: 7M USD

People living in drought affected areas

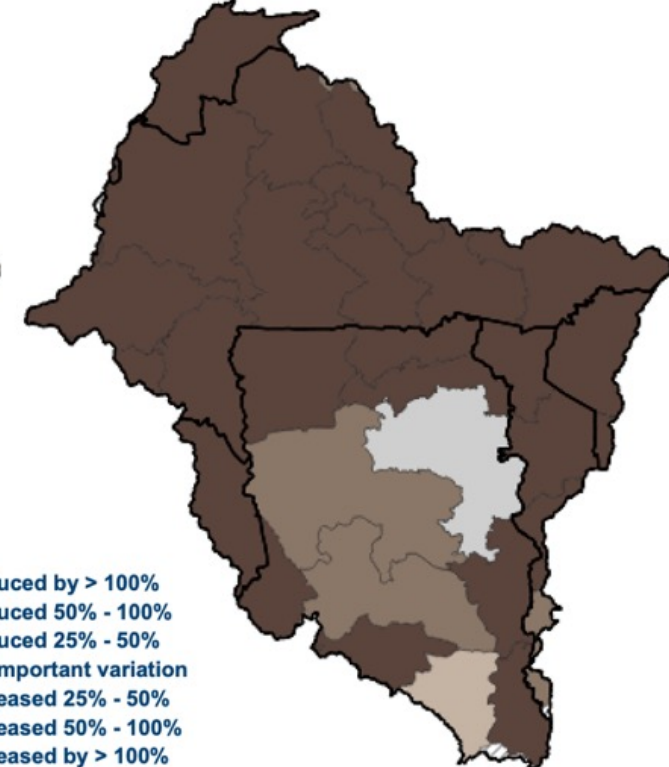
Absolute Number in Current Climate Conditions



Anomaly in Projected Climate Conditions



Anomaly in Projected Climate Conditions with UN Population Projection



People living in drought affected areas

Q8: Where are most people severely affected by a 'severe impactful' drought?

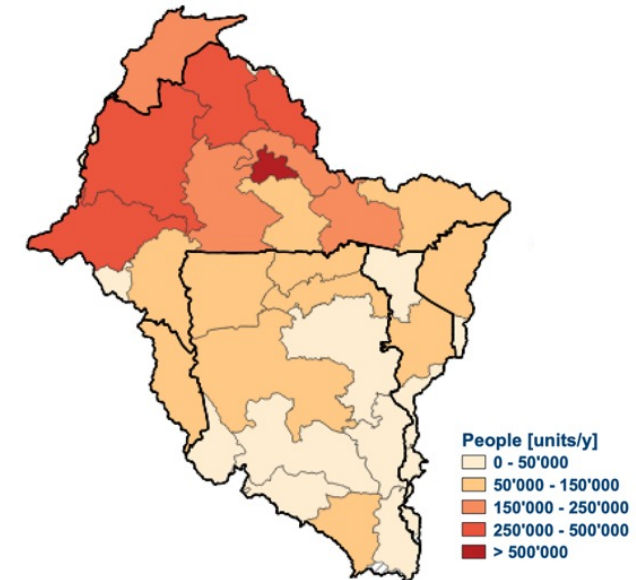
A: In the cities

B: We don't know

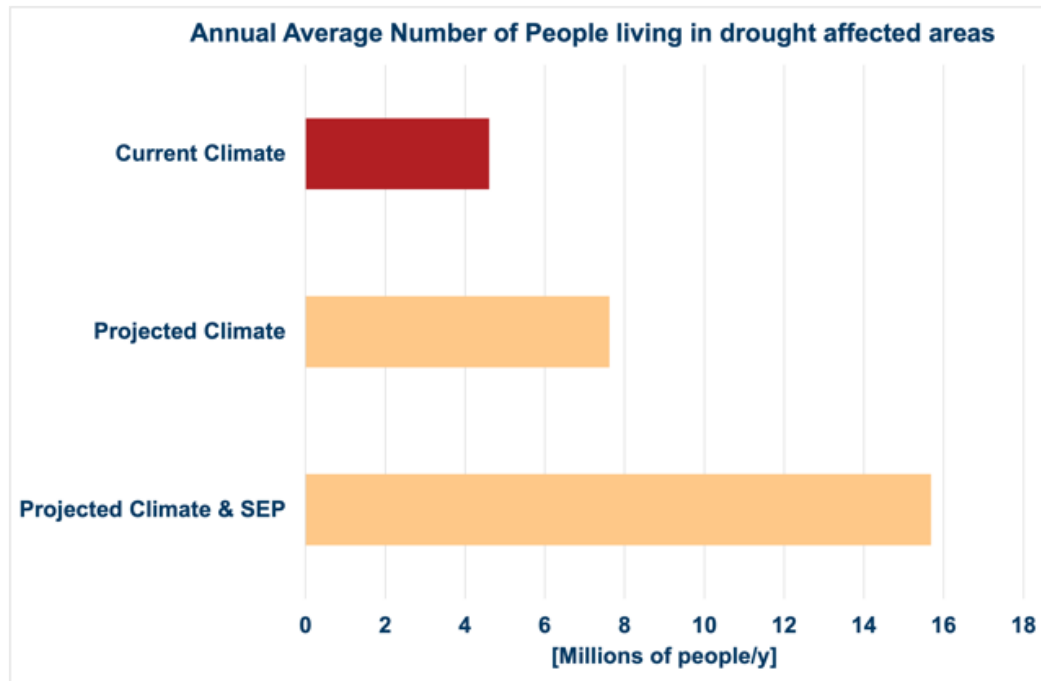
C: In the Northern part of the Volta Basin

D: In large regions

Absolute Number in
Current Climate Conditions



People living in drought affected areas

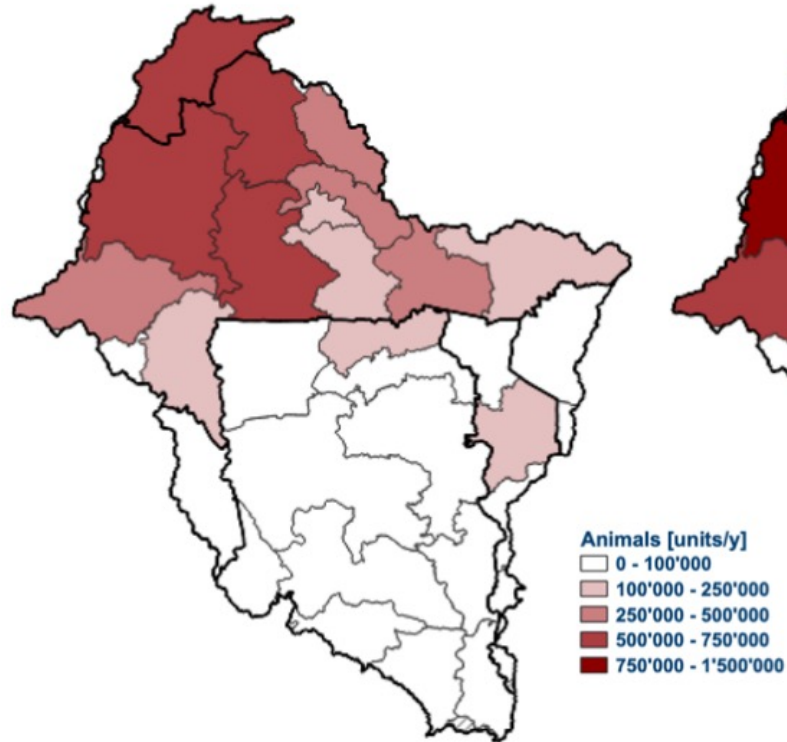


Q9: What influences the increase in number of people living in drought affected areas in the future?

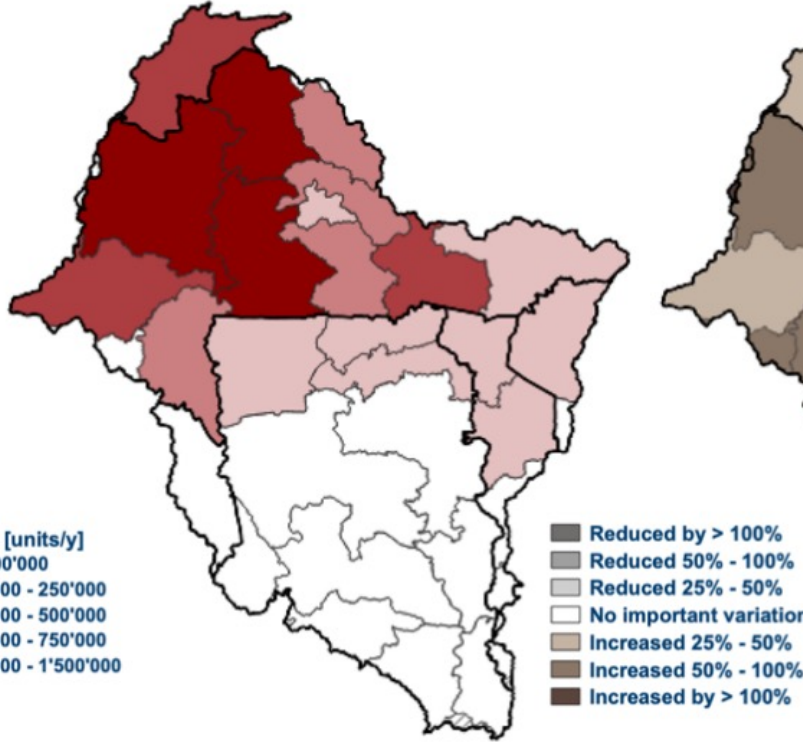
- A: Mostly climate change
- B: Mostly population growth
- C: Interaction of the two
- D: None of the two

Livestock in drought affected areas

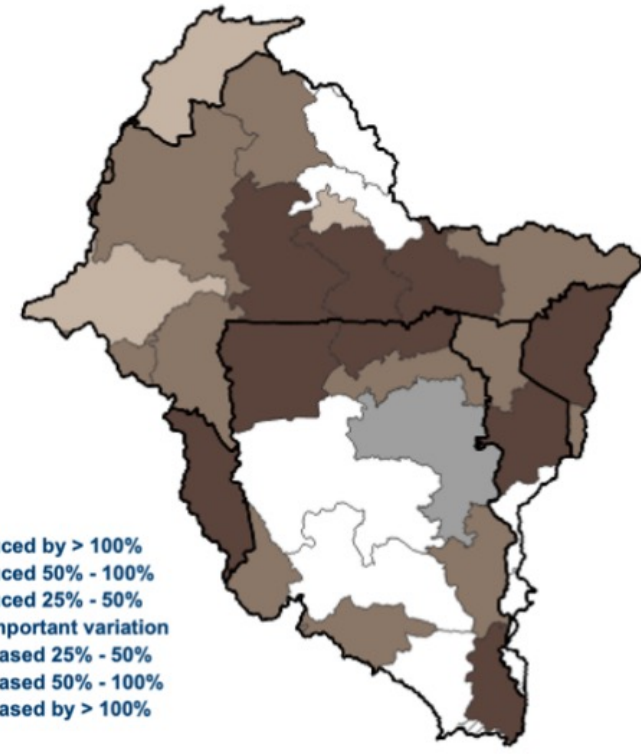
Absolute Number in Current Climate Conditions



Absolute Number in Projected Climate Conditions

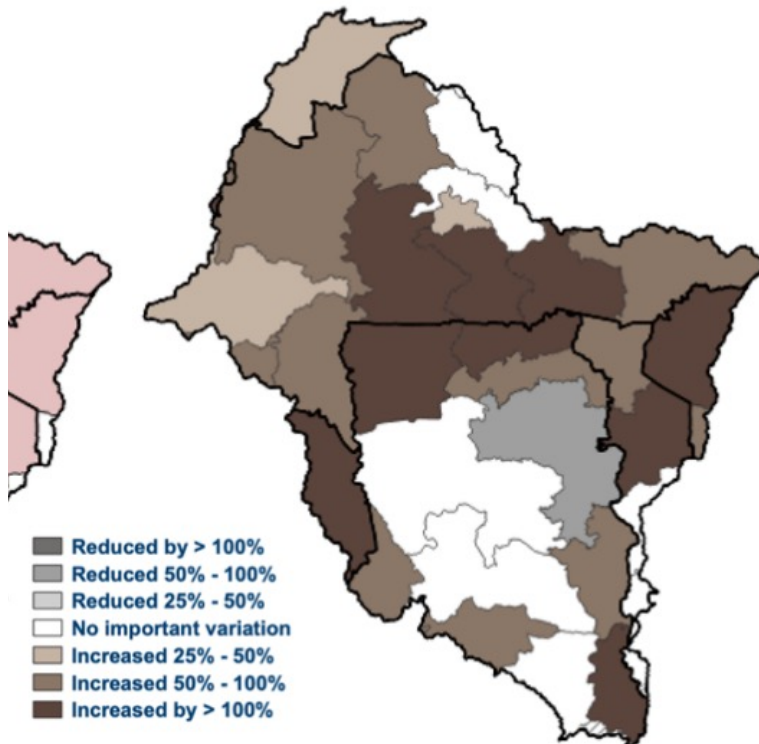


Anomaly in Projected Climate Conditions



Livestock in drought affected areas

Anomaly in Projected Climate Conditions

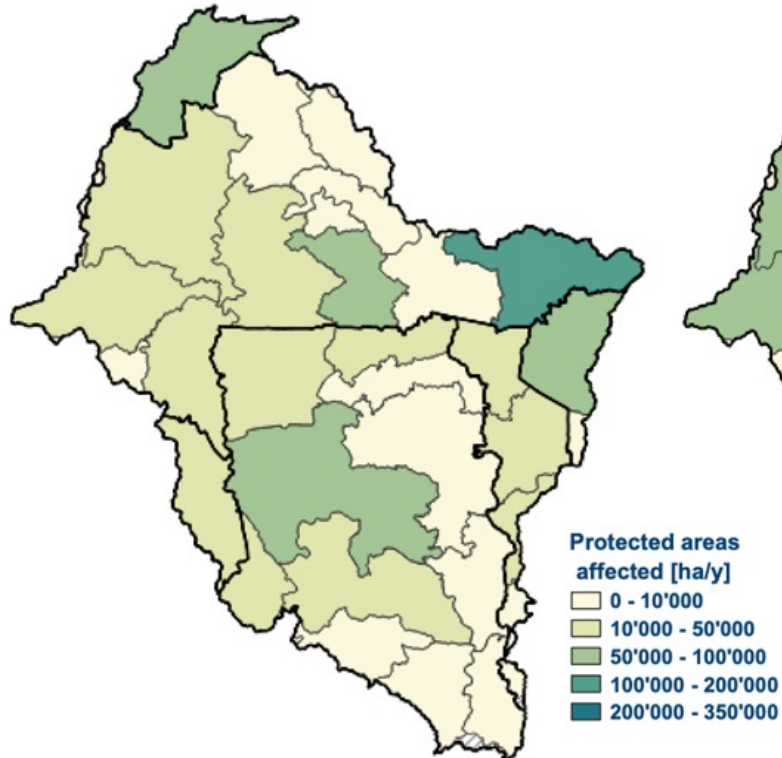


Q10: Which region sees a reduction in average annual number of animals living in regions affected by severe droughts?

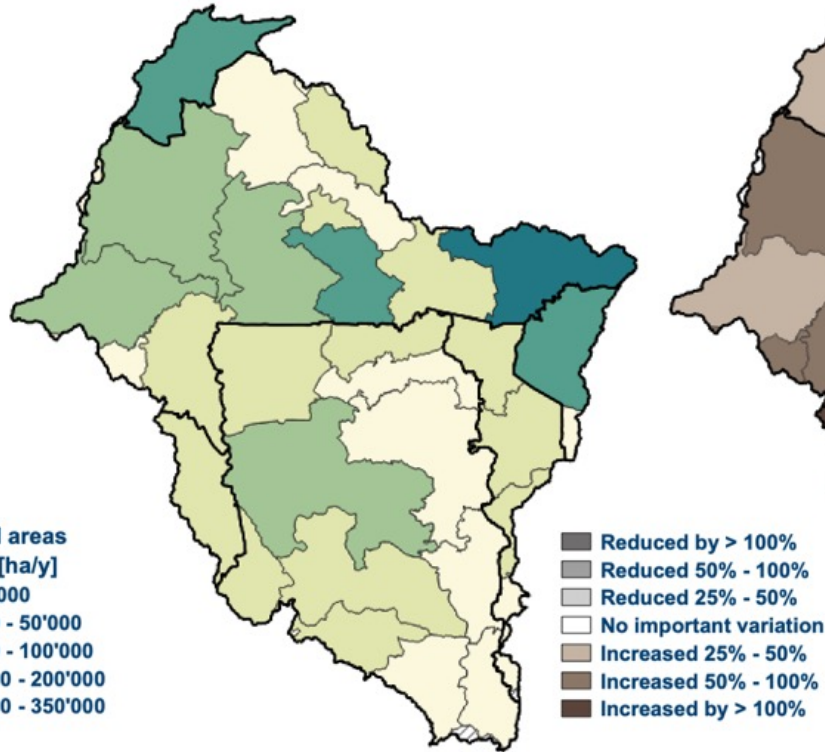
- A: A region in Ghana
- B: A region in Burkina Faso
- C: A region in Togo
- D: No region

Protected areas in drought affected areas

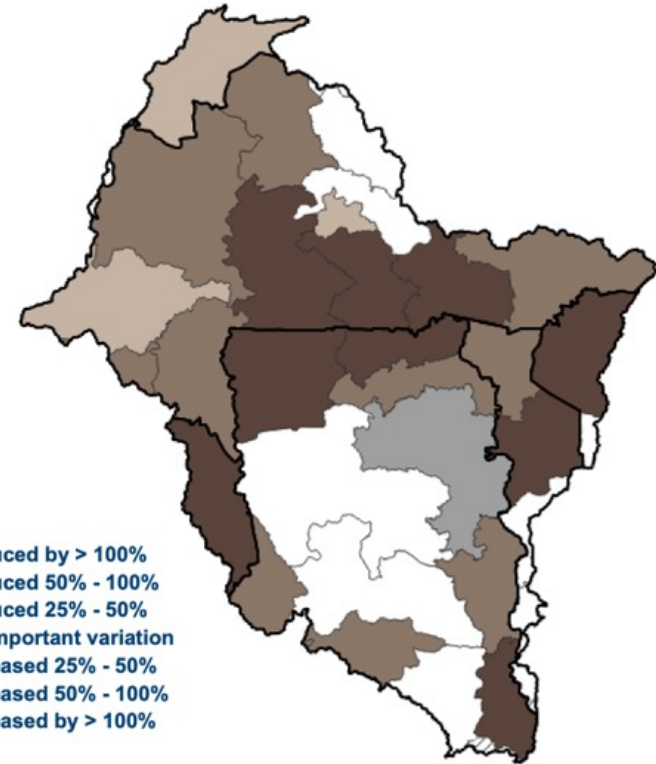
Absolute Number in Current Climate Conditions



Absolute Number in Projected Climate Conditions



Anomaly in Projected Climate Conditions



End of the quiz!

How many questions did you get right?

Remaining questions with regard to the results?