

ARC RISK PROFILES: THE
AFRICA RISKVIEW
METHODOLOGY

SESSION OBJECTIVES

Introduction to drought risk modelling:

- Describe the basic concepts of drought risk modelling and risk transfer
- Present the different components of the ARC drought model





CONTENT

- Drought risk modelling
- Introduction to *Africa RiskView* (ARV)

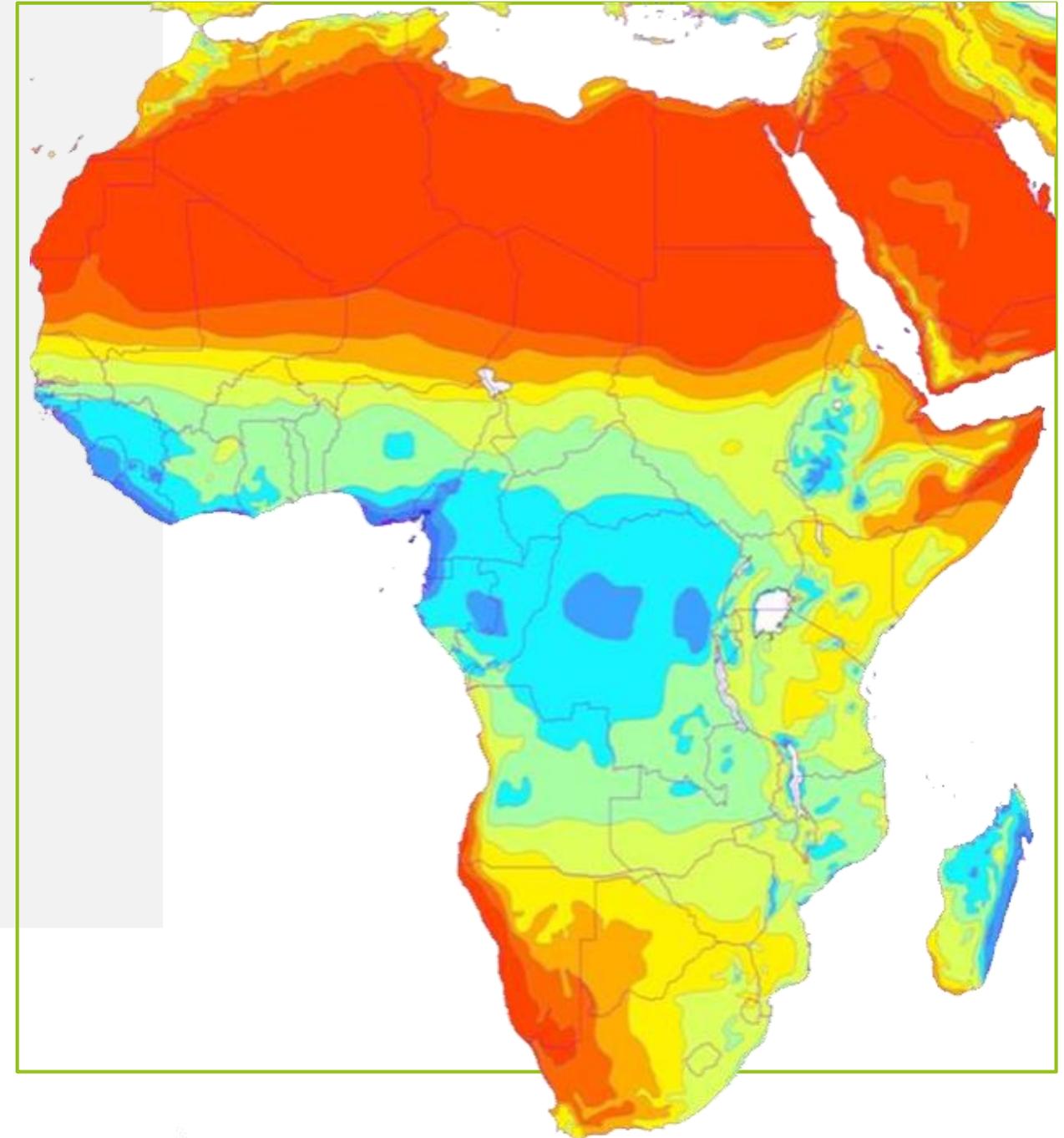
QUANTIFYING DROUGHT RISK

Many ways to measure different types of drought (meteorological, agricultural and hydrological drought), including:

- Water Requirements Satisfaction Index (WRSI)
- Rainfall estimates
- Vegetation Indices
- Soil moisture index
- Standardized Precipitation Index
- Standardized Precipitation Evapotranspiration Index
- Standardized Streamflow Index

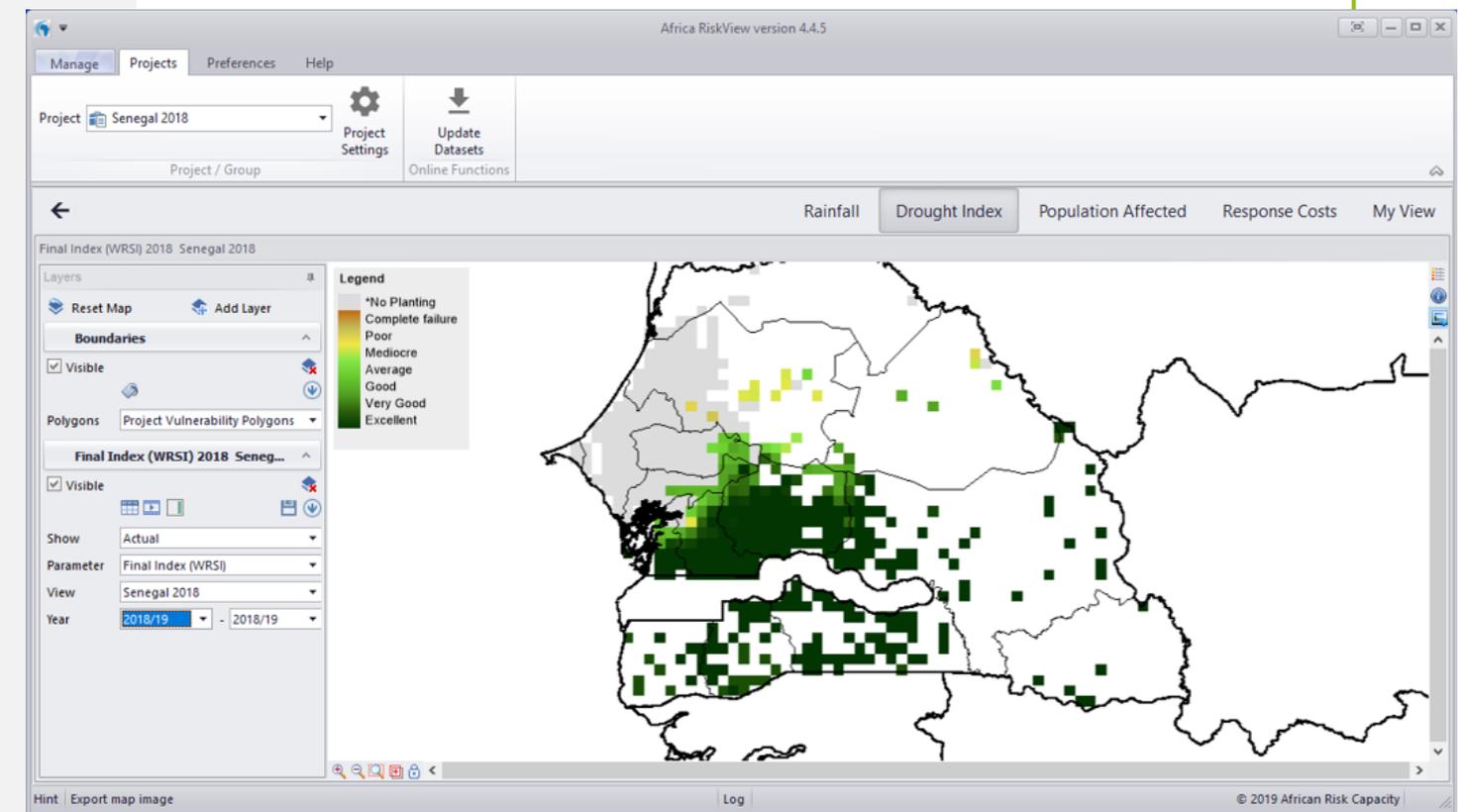
ARC use the WRSI index in the *Africa RiskView* modelling software.

Originally developed by FAO, it is well-known, commonly used on the African continent, and specific to crop performance.



WATER REQUIREMENTS SATISFACTION INDEX (WRSI)

- WRSI is a water balance model. This means that it compares what's available (leftover + water in - water out) with what's needed by the plant.
- It is an indicator of crop performance based on the availability of water to the crop during a growing season.
- WRSI has been adapted and extended by ARC in a geospatial application *Africa RiskView* to support drought modelling and risk transfer.





CONTENT

- Insurance
- Drought risk modelling
- **Introduction to *Africa RiskView***

WHAT IS AFRICA RISKVIEW?

Africa RiskView (ARV) is a **drought risk modelling platform** that allows countries to:

RAINFALL

Monitor and analyse rainfall throughout the continent in near-real time

DROUGHT

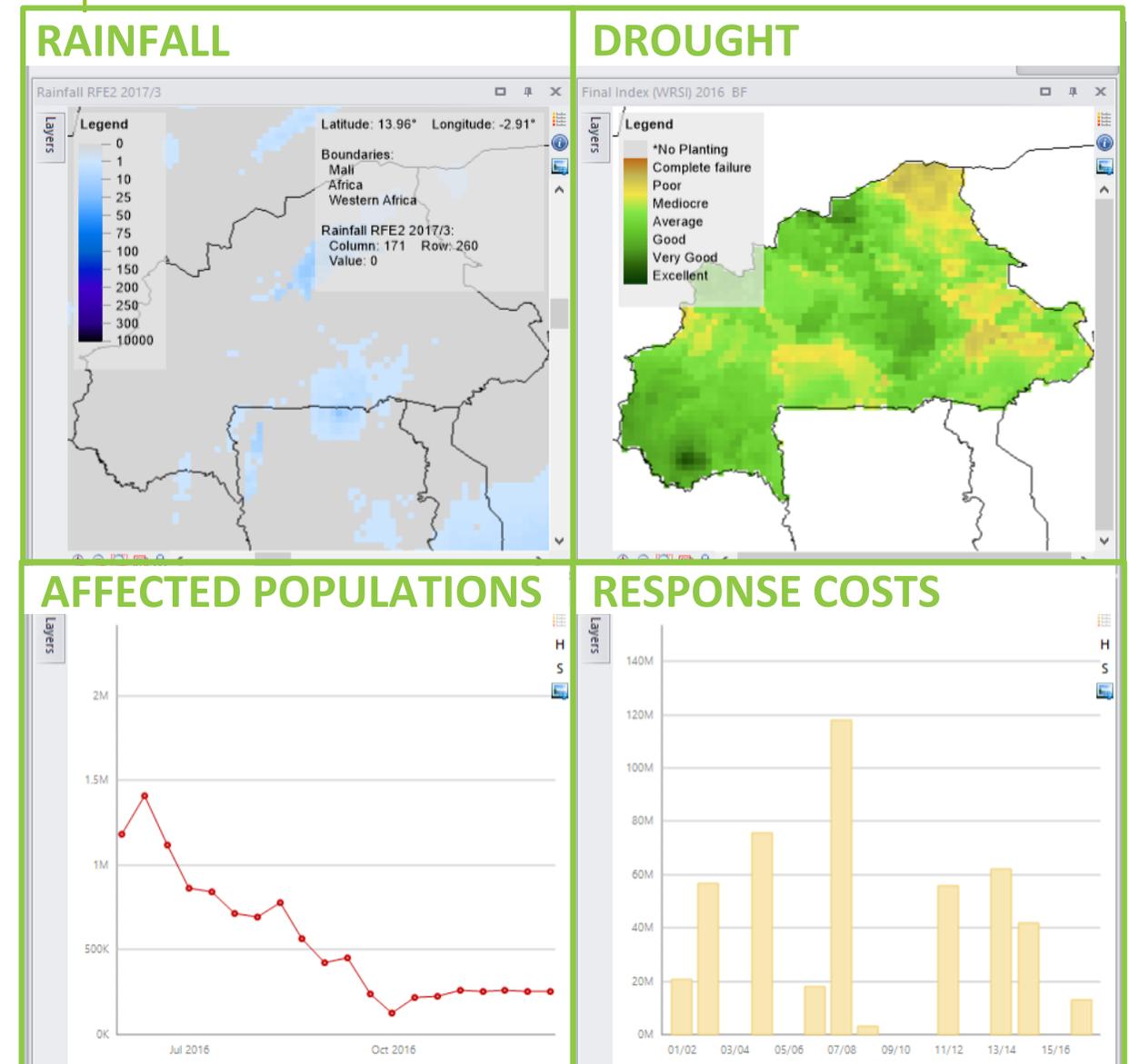
Follow the progression of agricultural and rangeland seasons based on country-specific projects

AFFECTED POPULATIONS

Translate agro-meteorological developments in impact estimates on vulnerable populations

RESPONSE COSTS

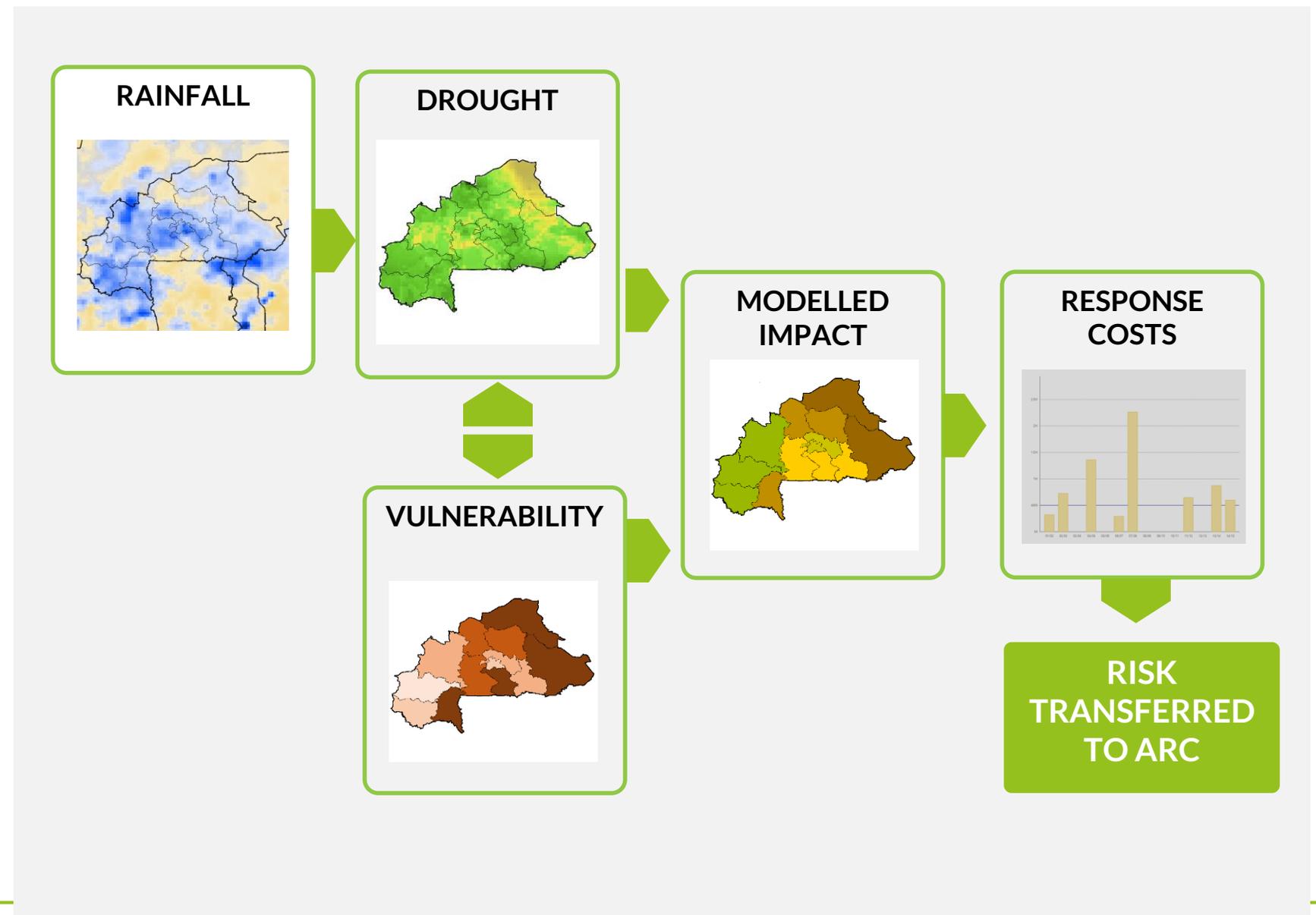
Calculate the associated response cost.
Define participation in the ARC insurance pool using transparent criteria.



AFRICA RISKVIEW IN ACTION

ARC calculates drought risk following 5 major steps in *Africa RiskView*.

- 1 Satellite rainfall data is downloaded at a pixel level, using sources such as RFE2, ARC2 and TAMSAT.

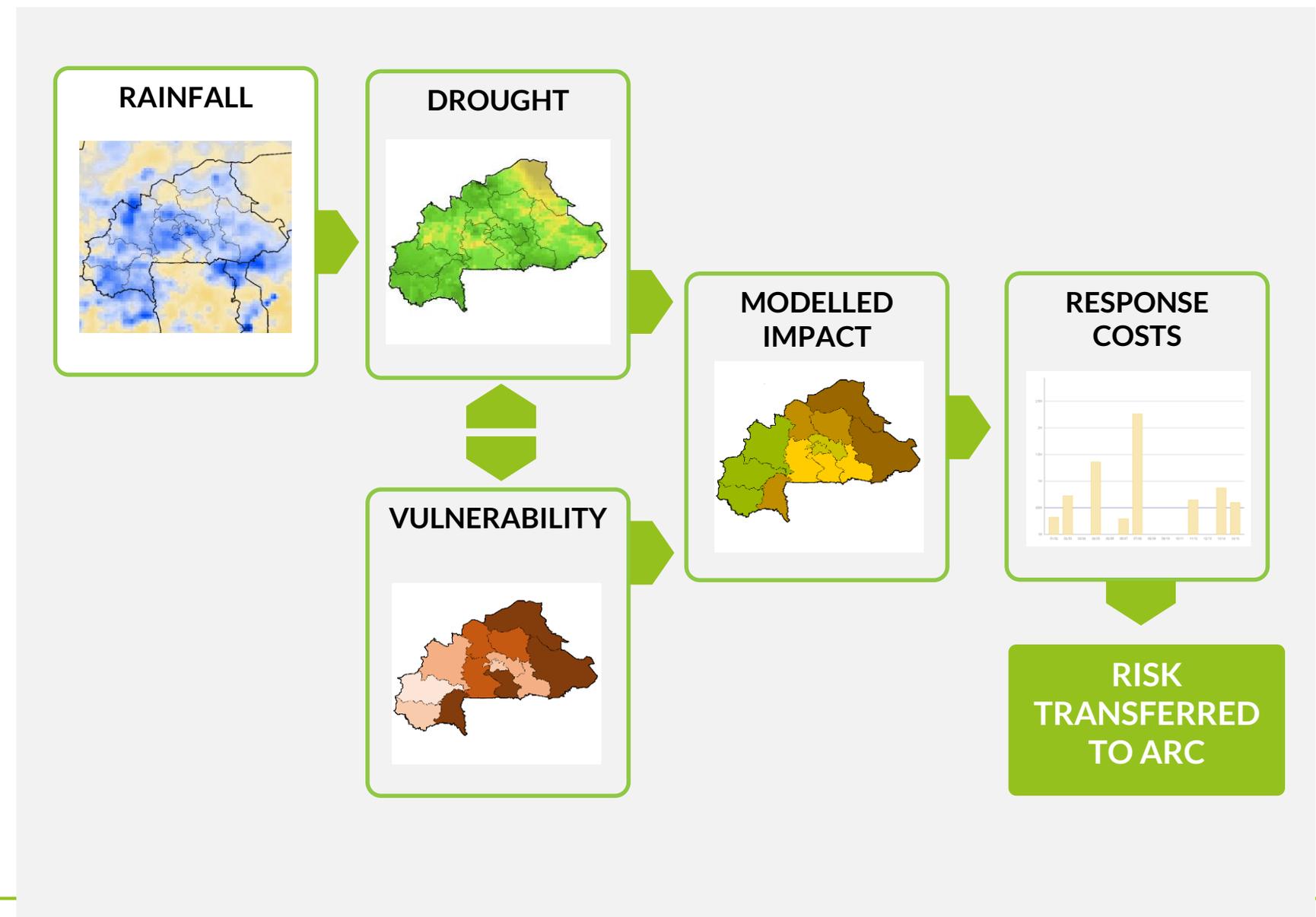


AFRICA RISKVIEW IN ACTION

ARC calculates drought risk following 5 major steps in *Africa RiskView*.

2

The rainfall information is converted into a drought index, using the WRSI. The WRSI is customised for each country that participates in ARC during a one-year process in order to allow for the highest level of accuracy.

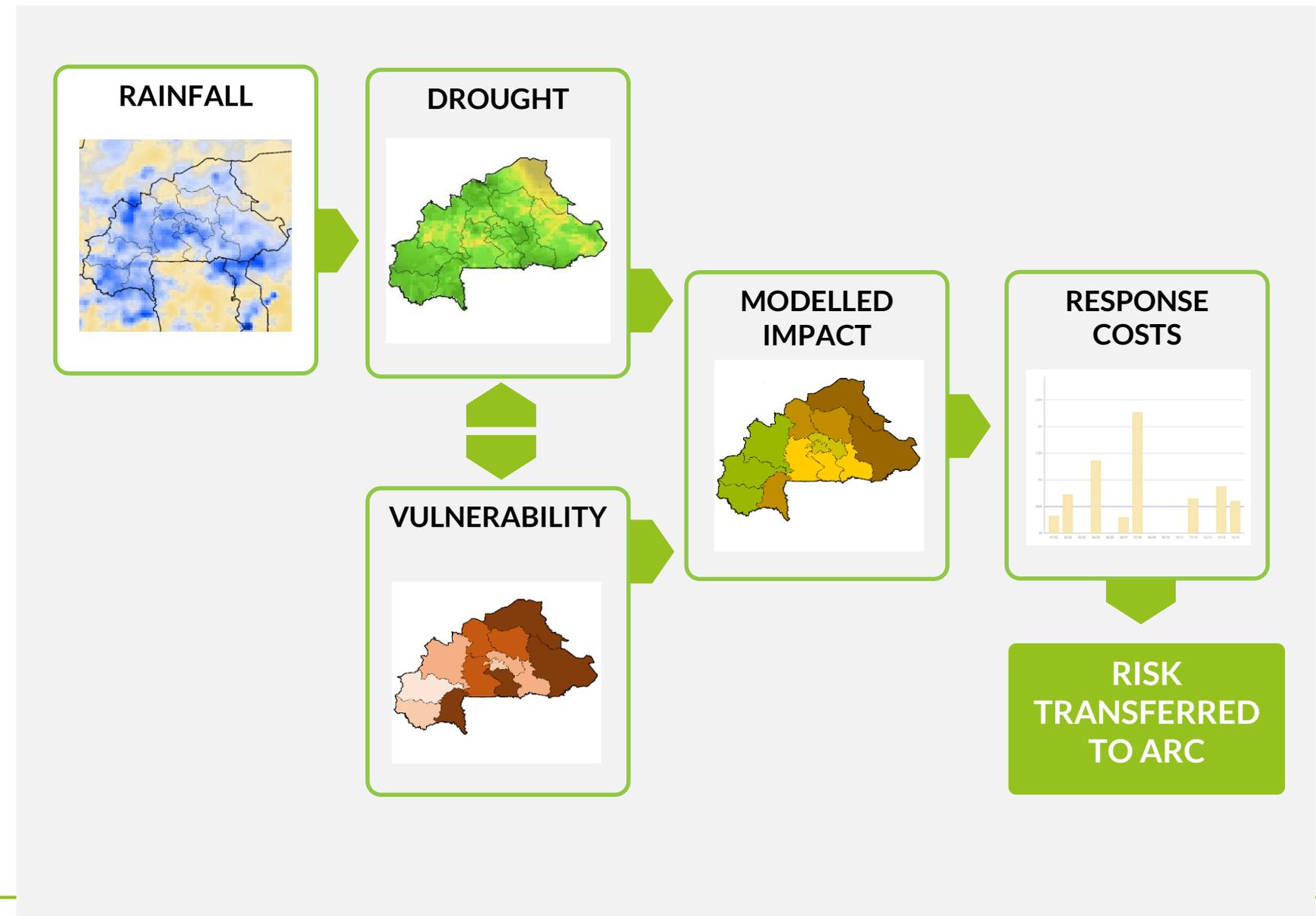


AFRICA RISKVIEW IN ACTION

ARC calculates drought risk following 5 major steps in *Africa RiskView*.

3

The drought data is then overlaid with vulnerability information – this information is extracted from vulnerability assessments and other studies.

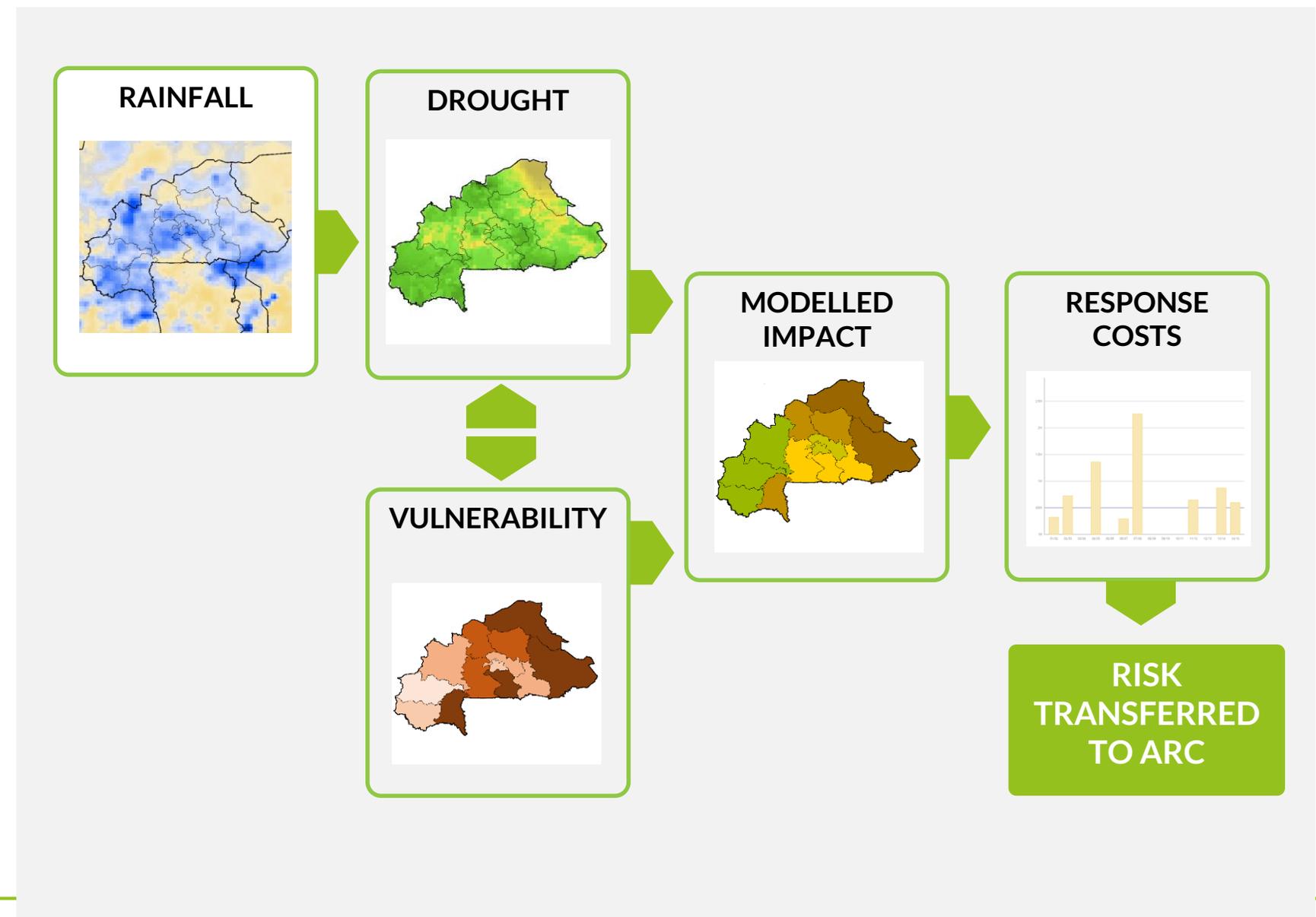


AFRICA RISKVIEW IN ACTION

ARC calculates drought risk following 5 major steps in *Africa RiskView*.

4

The combination of drought index and vulnerability data allows ARV to model the impact of a drought event.

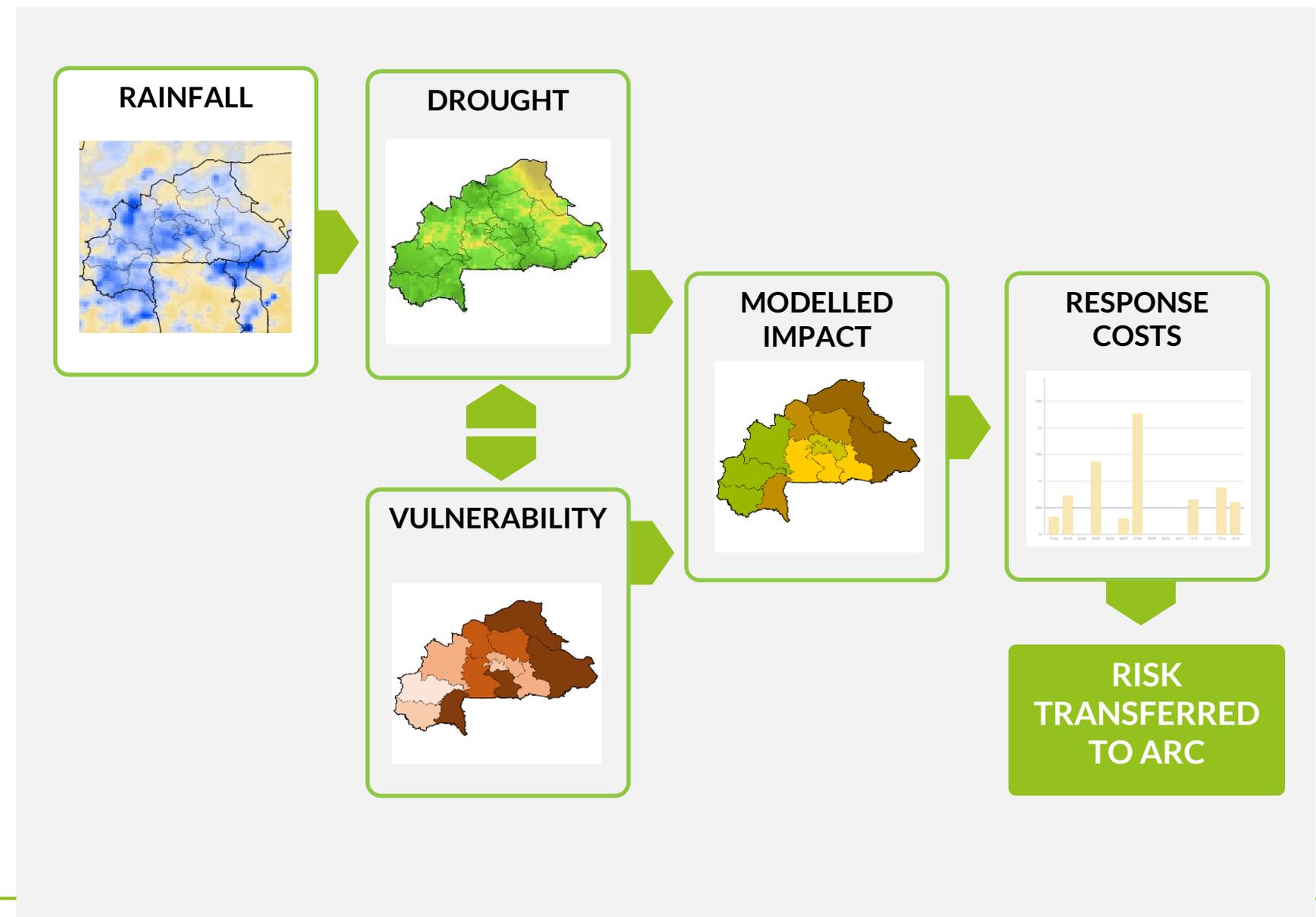


AFRICA RISKVIEW IN ACTION

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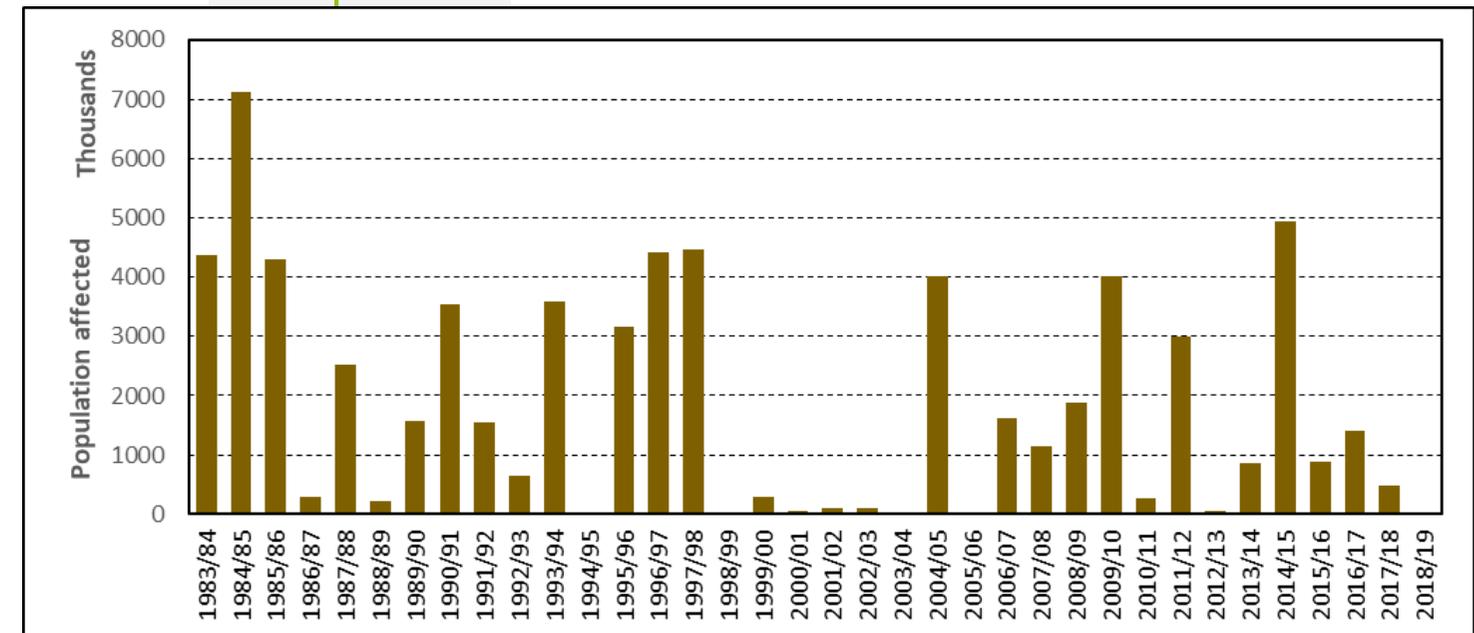
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In a last step, the modelled impact is converted into estimated response costs. The response cost series provides a basis for transfer of drought risk to ARC.



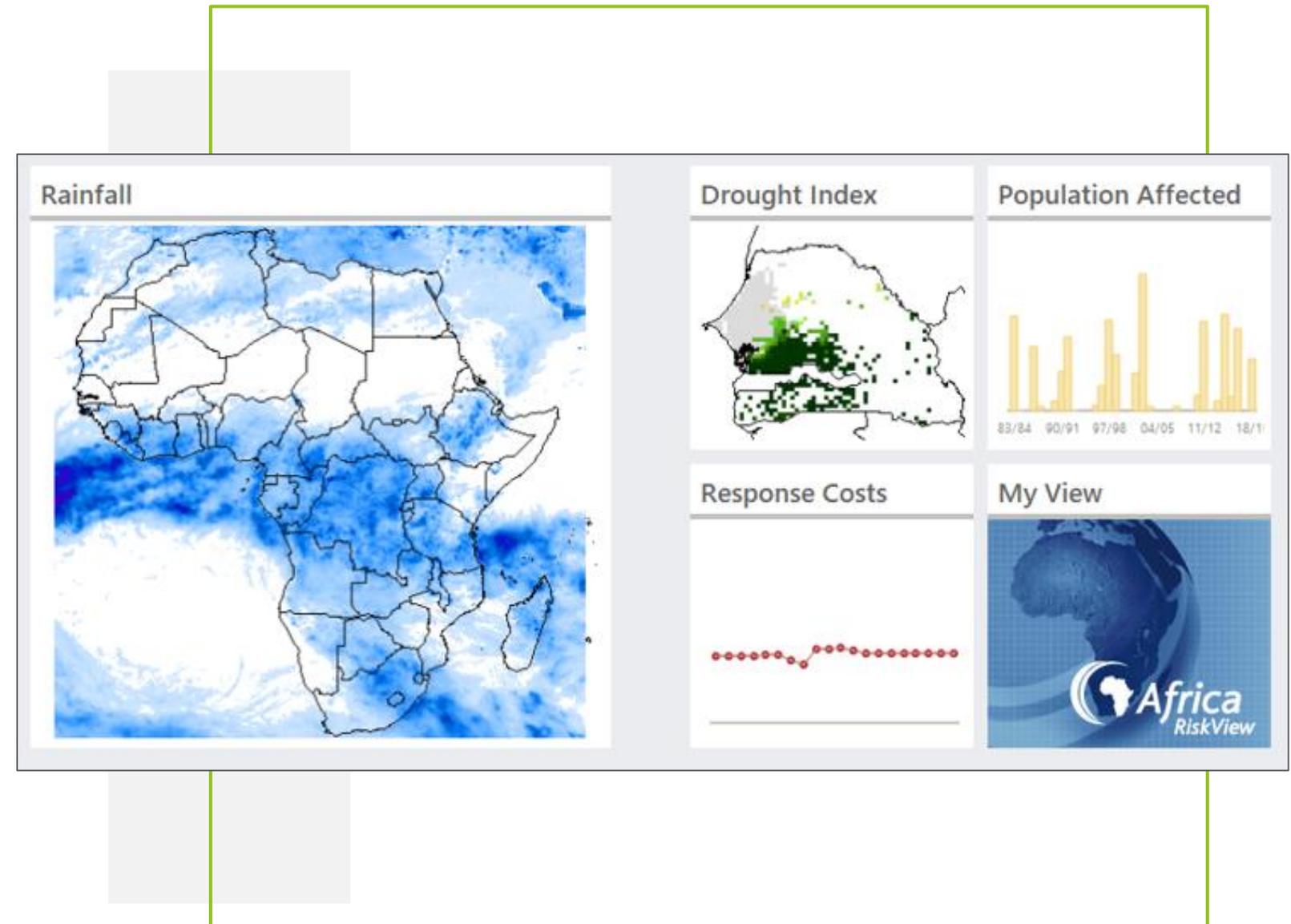
WHAT IS THE ARV OUTPUT?

- The output of ARV is a Risk Profile, expressed either:
 - In terms of estimated numbers of people affected by drought
 - Or in terms of estimated response costs
- Shows the frequency and magnitude of drought events in the country.
 - Past drought events should be representative of future drought events.
 - The risk profile is used to calculate the insurance premium.



PURPOSE OF ARV

- Allows users to follow the progression of insured seasons in terms of agro-meteorological developments and in terms of impact on vulnerable populations in near-real time.
- Estimates the number of people potentially affected by drought before the end of the season, without the need for an assessment on the ground.
- Automatically triggers payouts by ARC Ltd if specific thresholds (set by the country) are reached.
- Transparent and objective mechanism to quantify drought risks which is applied to all countries in the ARC Risk Pool.





Questions

Thank you