

# EXTREME WEATHER AND RESILIENCE

- Isolated crises have occurred before: for example, in 1988/89 there was a significant drought related impact on the yields of maize and soybean, and in 2002/03 drought impacted wheat in Europe, Russia, India, and China; rice in India.

# OF THE GLOBAL FOOD SYSTEM

- The level of risk is growing: evidence suggests that the risk of a 1-in-100 year production shock event from extreme weather, could increase to 1-in-30 year or more in the next few decades.
- Extremes are where the greatest impacts from climate change will be felt, but predicting the frequency and intensity of extreme events is extremely challenging.

## OPERATING CONTEXT || 2016... ...by 2026 ?

- Escalating demand for food
- Trade volume and interdependencies amplify shocks
- Crop production concentrated in global regions, increasing exposure to extreme weather risks
- Reduced self sufficiency in China for cereals
- Increasingly inelastic demand

- Key Food import states, economically and politically unstable
- Greater interdependencies
- Production struggles to keep pace with demand
- Underinvestment in exporting region infrastructure
- Recovery of oil prices

## MULTIPLE BREADBASKET FAILURE

### EXTREME WEATHER disrupts production

- Poor Indian monsoon, reduces wheat crop in India and China
- Early Spring thaw-freeze in Black sea area affects wheat crop
- Summer drought in N. America affects maize and wheat forecasts
- Heat wave and drought in Europe affects wheat crop
- Indian monsoon second failure, causes rice harvest concerns



### ESCALATING PANIC exacerbates crisis

- As cereal prices climb, export bans are imposed
- Countries impose tariff reductions or consumption subsidies
- China and Argentina raise export taxes on Soybean and Maize
- The US does not waive the ethanol mandate
- Hoarding and further export restrictions in SE Asia
- Further export bans are imposed
- Low stock to use ratio raises concerns of availability

PRICE volatility  
EXPORT bans  
Import Restrictions

### POLITICAL

- Social unrest experienced; Middle East and North Africa particularly vulnerable.

**IMPACTS:** the hardest economic, social and political impacts are likely to be felt by import dependent countries, particularly in Sub-Saharan Africa. Major economy impacts would likely be muted.

### SOCIAL

- Deterioration in nutritional security
- Government intervention (e.g. in China) may protect some poor food consumers

### ECONOMIC

- FAO food prices hit 250 and prices of affected grains go up 3x.
- Country level budgetary pressures experienced
- Poverty rates increase
- Inflation and deterioration in the balance of payments

### Reduced Resilience

- Intensification and extensification of agriculture
- Degradation of biodiversity, soil and water resources
- Increase in GHG emissions and degradation of landscape carbon
- Destabilisation of governments
- Increase in regional migration (internal and external)
- Reduction in global stocks

Increased Vulnerability

## KEY RECOMMENDATIONS

- Adapt agriculture to account for climate extremes
- Better understand the risks by improving climate, economic and crop modelling tools
- Better coordinate risk management
- Do not impose export restrictions

- Better understand how responses can amplify shocks
- Improve function of international markets
- Bolster national resilience to market shocks
- Make biofuel mandates more flexible
- Implement mechanisms to protect low income, fragile countries

- The above visualisation represents a fictional, but plausible 2016 scenario outlined in the Resilience Taskforce summary report.
- Text in red indicates how the scenario could develop further in a 2026 situation.

- The scenario originated from the isolated crises outlined above in 1988/89 and 2002/03, occurring simultaneously.

Figure 4: A visual summary of the scenarios presented in the report.