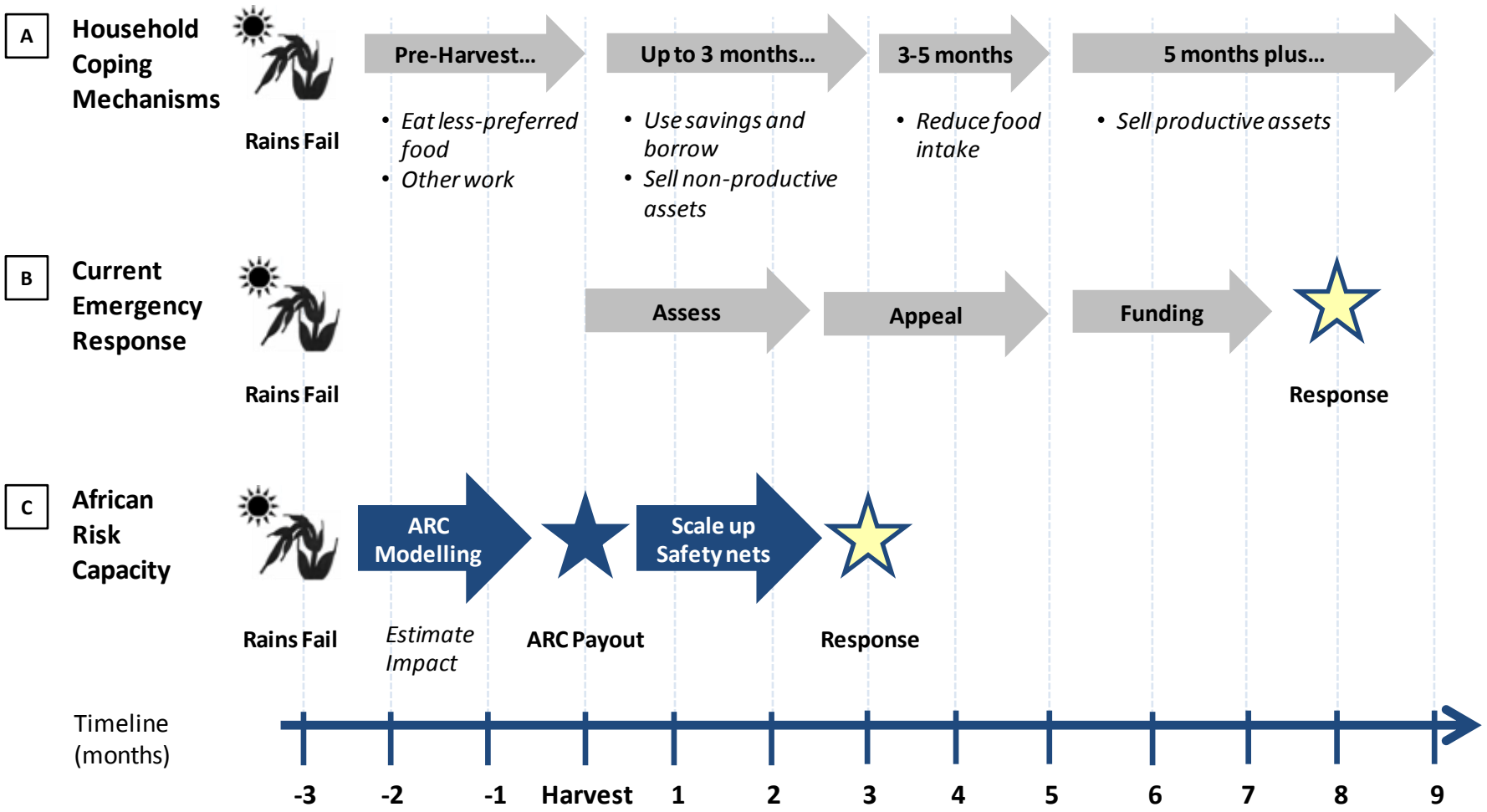
The African Risk Capacity (ARC)

The African Risk Capacity, ARC, is a ground-breaking AU programme to improve current responses to drought food security emergencies and to build capacity within AU member states to manage drought risks.

As an African-owned, continental index-based weather risk insurance pool and early response mechanism, ARC offers an African solution to one of the continent's most pressing challenges.

Protecting Livelihoods & Development Gains

Cost-effective contingency funding protects livelihoods and development gains[1]



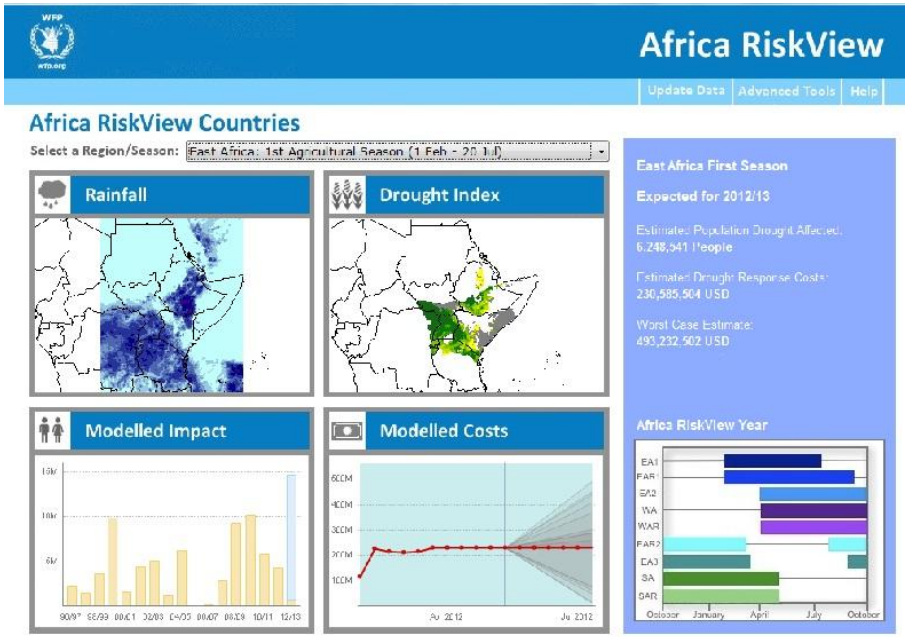
[1] Clarke/Hill, Cost-Benefit Analysis of the African Risk Capacity Facility, 2012

Africa RiskView: Technical Engine of ARC

Africa *RiskView* (ARV) is a software tool that allows countries to:

- Analyze and monitor their drought-related food security risk
- Define their participation in ARC using transparent criteria
- Monitor potential ARC payouts

By bringing together existing information on **vulnerable populations** with **drought** and **crop early warning products**, ARV defines a standard setting methodology that allows countries to **identify** and **quantify** drought risk and to **transfer** a portion of this drought risk to ARC



All model settings in ARV can be customized for each country and to reflect national risk transfer decisions

Risk Transfer: Pooling Halves Coefficient of Variation

Reduction in Coefficient of Variation: 1-in-10 Retention

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	AAL	ST.DEV	CoV
Lesotho									1.1M	3.9M	3.68
	Ethiopia								4.4M	9.7M	2.20
		Kenya							6.2M	11.7M	1.88
			Malawi						8.0M	13.2M	1.65
				Mali					9.5M	14.3M	1.50
					Mozambique				11.1M	16.5M	1.49
						Niger			12.8M	18.6M	1.45
							Senegal		14.1M	20.1M	1.43
								Tanzania	15.6M	21.0	1.35

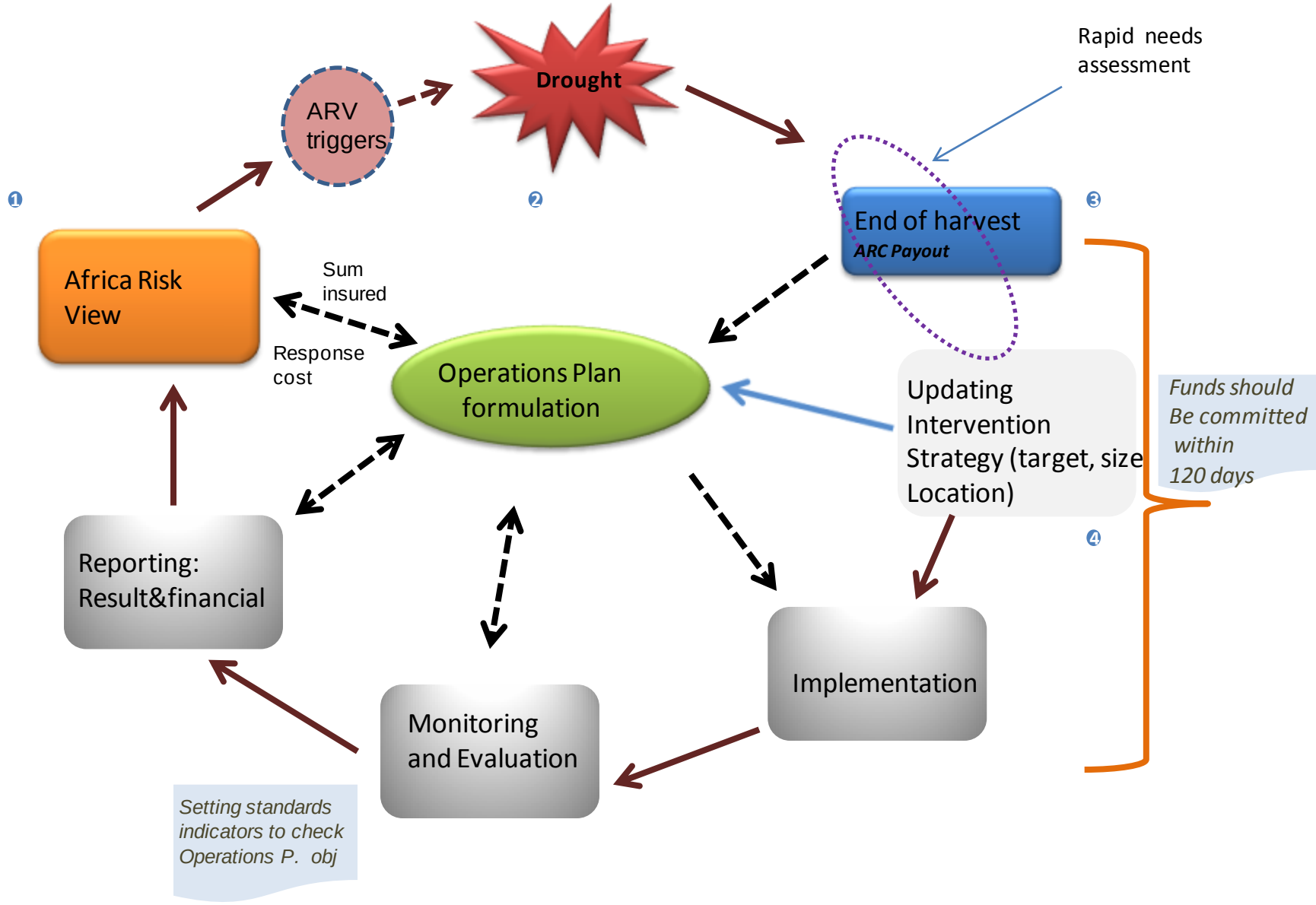
ARC Limit per Country per Season: $30 million at 1-in-50 year level Source: ARC Project dynamic financial analysis (in-house model)

Risk Transfer: Pooling Halves Indicative Premium Rates

COUNTRY	1-IN-5 YEAR RETENTION	1-IN-7 YEAR RETENTION	1-10-YEAR RETENTION
LESOTHO	12%	9%	7%
KENYA	11%	9%	7%
ETHIOPIA	11%	9%	7%
MALI	10%	8%	6%
SENEGAL	11%	9%	6%
MALAWI	11%	9%	8%
NIGER	13%	10%	7%
TANZANIA	10%	8%	6%
MOZAMBIQUE	10%	8%	7%
MARKET SAVINGS	32%	39%	47%

Pricing Assumptions: Average Country Stand-Alone Premium Loading: 10% Return on VaR; Average Country Pool Premium Multiple: 1.5 (From Clarke/Hill, Cost-Benefit Analysis of the African Risk Capacity Facility, 2012.)

Operations Planning: Plan Cycle Management



Benefits of Early Response

Household Coping Mechanisms

Rains Fail

Pre-Harvest…

- *Eat less-preferred food*
- *Other work*

Harvest

Up to 3 months…

- *Use savings and borrow*
- *Sell non-productive assets*

3-5 months

- *Reduce food intake*

5 months plus…

- *Sell productive assets*

Cost, by household*, of delaying response until … months after the harvest

Based on average household of 6 individuals

1	2	3	4	5	6	7	8	9
US$ negligible			US$ 49		US$ 1294			

Assistance needs to reach the affected population by <u>month four</u> or *at least* by <u>month six</u>

Source: Cost Benefit Analysis of the African Risk Capacity Facility, Clarke/Vargas

Cost-Benefit Analysis: Value Multiplier 3

Two value drivers make ARC an efficient tool to manage droughts:

- Improved risk management through *risk transfer* and *risk pooling*
- Early response actions and improved targeting
- Direct costs (e.g. of food) can also be reduced by planned and timely action

Financial benefit of improved risk management:

- Low operating costs for the ARC, thus lower premiums for countries
- Better conditions on insurance markets
- Focusing on more extreme coverage > 1-in-5 year events better value

Enables

Development benefit of planning and early response:

- Protect lives and livelihoods
- Protect development gains
- Maintain economic growth
- Scaling up social safety nets and contingent transfers most effective

Estimated benefit for every US$ 1 spent on ARC compared to giving budget support and current responses:

Approximately US$ 3[1] + additional direct cost savings[2]

[1] Clarke/Hill, Cost-Benefit Analysis of the African Risk Capacity Facility, 2012. Assumptions made: 1-in-5 year return period, country "risk aversion" of 2, ARC premium multiple of 1.2, payout-to-need correlation of 75%, scaling up social safety nets and contingent transfers the selected response mechanisms

[2] Direct cost savings include lower food cost, lower administrative cost, transport savings, etc.

www.africanriskcapacity.org

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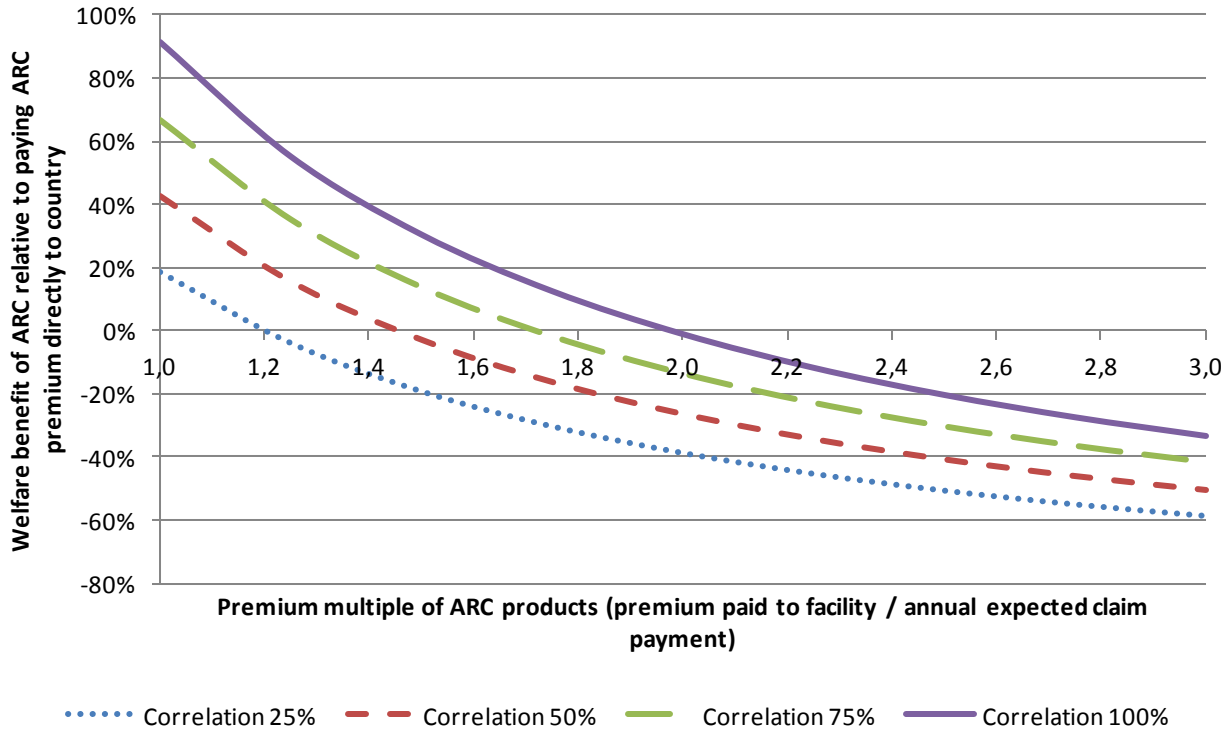
Back-Up Slides

African Risk Capacity

Cost-Benefit Analysis

Welfare Benefit from Improved Risk Management

Counterfactual: *Direct annual budget support to country from donors equal to the expected financial drought loss. Although funds are given every year irrespective of needs, i.e. with zero correlation to needs, they can be spent immediately whenever there is a drought problem in-country. However the response is limited by the amount of funds available.*



Assuming a 1-in-5 year return period and a country "risk aversion" of 2

Benefits from Improved Speed and Targeting

Assumptions: *A multiple of 1.2 (due to risk pooling opportunities), a $400 per household response costs and four different contingency plan scenarios*

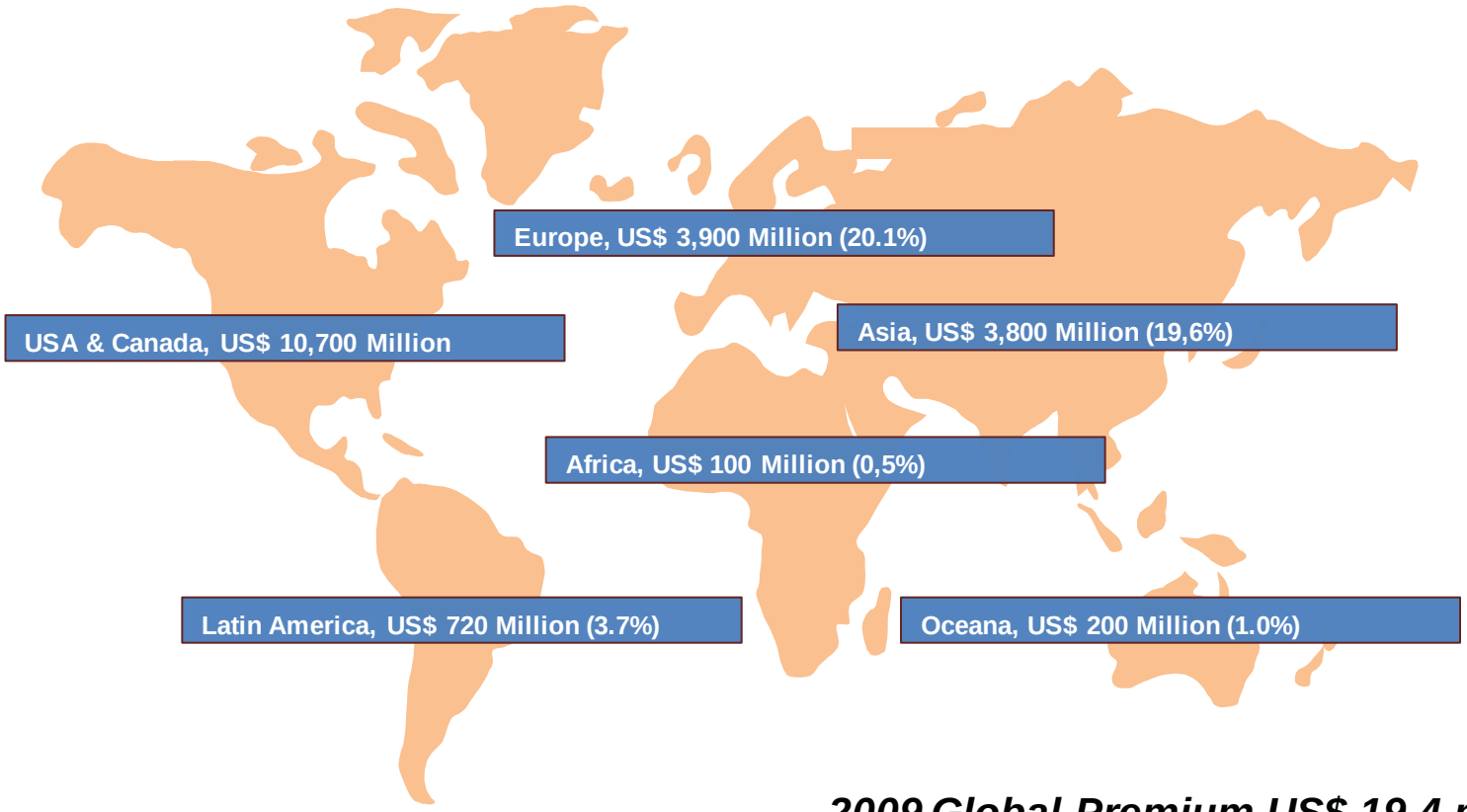
	Baseline (No ARC)	ARC Scenario 1: Improved food aid, deposit to national grain reserve	ARC Scenario 2: Improved food aid, deposit to holding account	ARC Scenario 3: Scaling up existing safety net	ARC Scenario 4: Insuring gov't budgets for state-contingency
Funds Made Available (USD)	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Amount Disbursed	1,000,000	833,333	833,333	833,333	833,333
Targeting: increase in number of in-need households reached	1,075	1,042	1,042	1,167	1,375
Speed: cost avoided as a result of earlier assistance (USD)	0	1,245	Cash: 1,245 Food: 0	1,294	1,294
Total benefits received by poor households (USD)	430,000	1,710,000	Cash: 1,710,000 Food: 420,000	1,980,000	2,330,000
Cost-Benefit Ratio to households	43%	171%	Cash: 171% Food: 42%	198%	233%

Analysis does not factor in the differing cost of logistics, disbursement and assessment across scenarios

Insurance and Food Security

Global Spread of Agricultural Insurance

About 100 countries had agricultural insurance in 2011: Africa was poorly represented



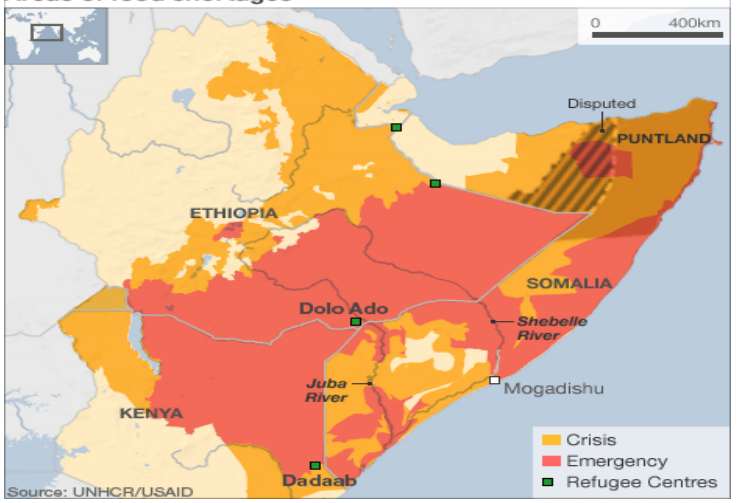
2009 Global Premium US$ 19.4 mio

Source: Charles Stutley, Promoting Food Security in a Volatile Climate, 01/2012; Iturrioz 2010; Mahul & Stutley 2010

Example: Ethiopia 2006 Transaction

- **Partnership: WFP and Government of Ethiopia, 2006**
- **Objective: Food security against catastrophe drought – use of an ex-ante weather derivative product to effect early cash payments to purchase emergency food supplies**
- **Target beneficiaries: 5 million food-insecure people**
- **Ethiopian Drought Index (EDI): Drought index developed by WFP using historical rainfall data for 26 weather stations and FAO's crop water balance model (WRSI).**
- **2006 Contracts details:**
  - AxaRe underwrote program
  - Total Sum Insured: US$ 7.1 million
  - Premium: US$ 0.93 million (rate 13.1%).
  - Premiums financed by USAID
- **2006 Results:**
  - No payout as rainfall was well above average
  - Policy not renewed in 2007, but learning used to develop RFM (hard v. soft trigger)
  - Spawned new WB products as offered to Malawi

Areas of food shortages



Source: Charles Stutley, Promoting Food Security in a Volatile Climate, 01/2012; WFP/IFAD 2010

African Risk Capacity

Example: East Africa

Situation Overview

The bordering pastoral areas of northern Kenya, southeastern Ethiopia, and southern Somalia have been affected by severe drought for more than a year

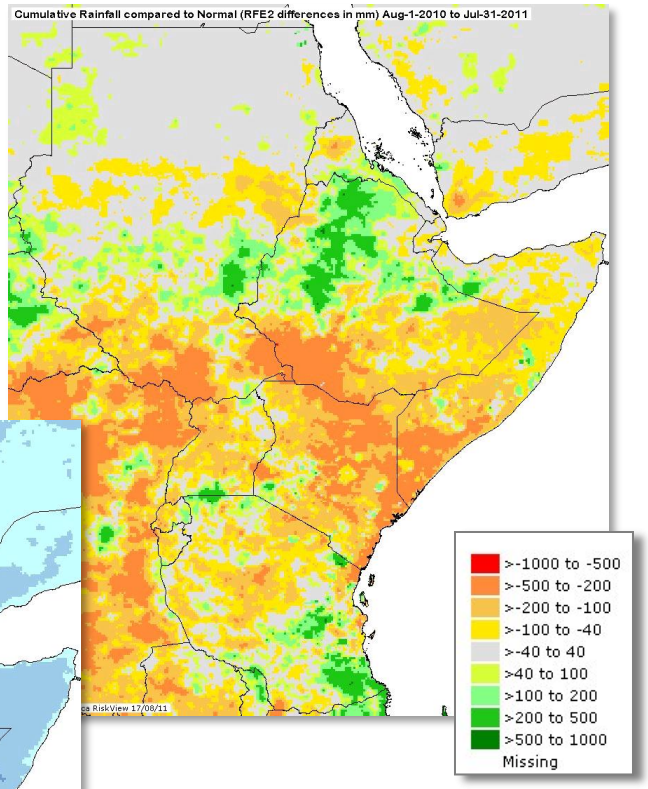
- **For these pastoral areas, particularly in Somalia, the August 2010 to January 2011 minor rains failed or were significantly below average**
- **The major rains from March until June 2011 were also below average**
- **It is these consecutive poor seasons that have led to the current humanitarian crisis affecting 13 million people in the region**

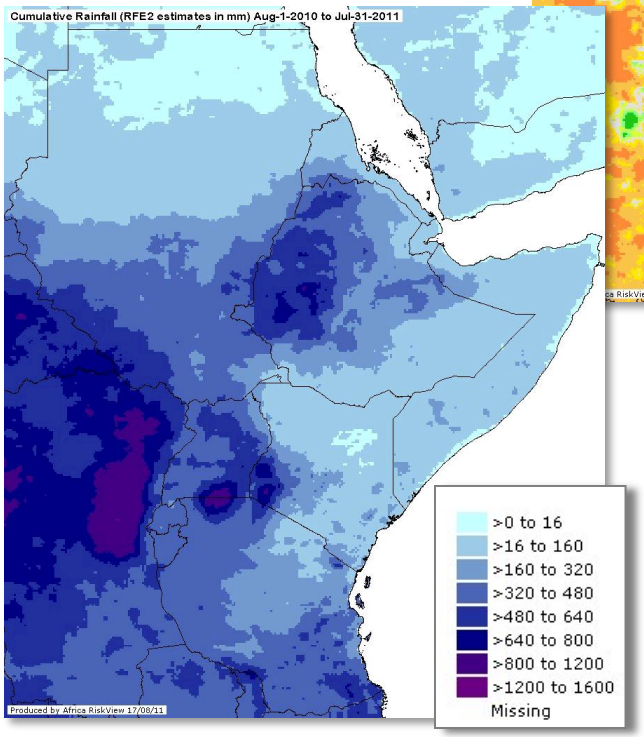
Hazard: Rainfall Monitoring

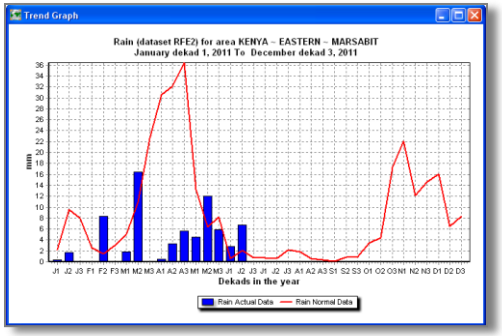
Data:

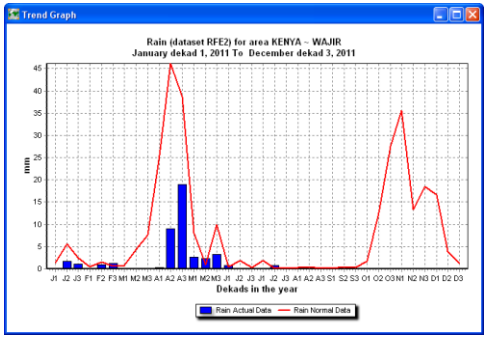
10-day rainfall imagery from US NOAA at 10x10 km resoultion across Africa

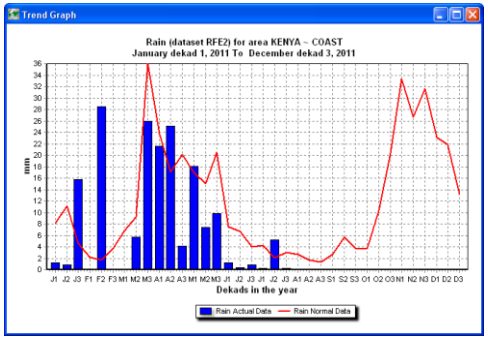
Pre-loaded archive 1996 – present, updated every 10 days automatically











Hazard: Drought Index Monitoring - Kenya

Africa RiskView uses FAO's crop model the Water Requirement Satisfaction Index, WRSI

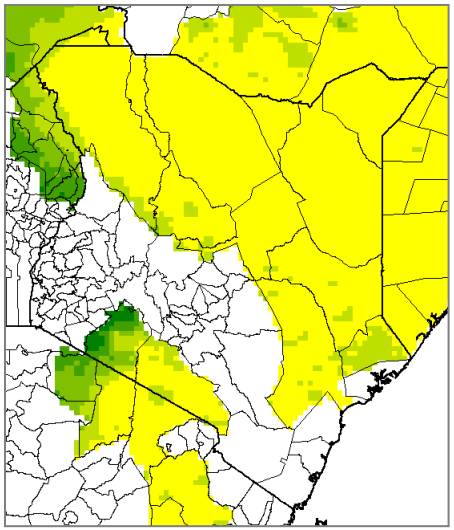
Ratio of actual seasonal evaportranspiration experienced by a crop to its water requirement and is linearly related to yield

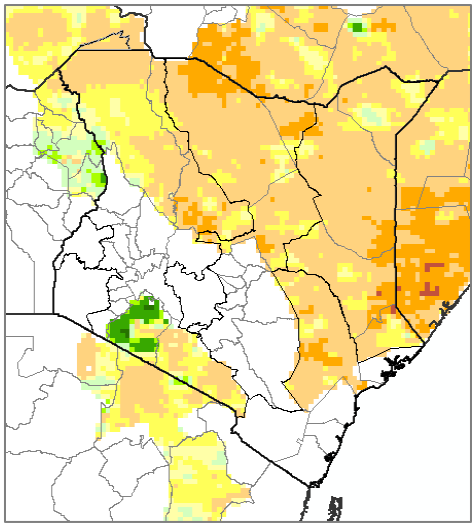
Can be applied to crops and rangeland

Updated every 10 days and is forward looking, i.e. estimates the end of season value as season progresses

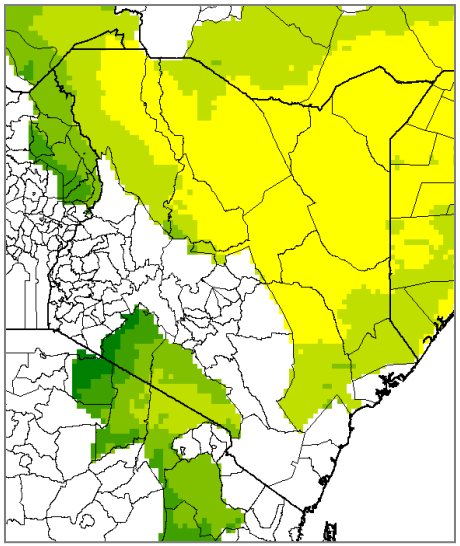
Drought defined when the WRSI falls below its average baseline in an area

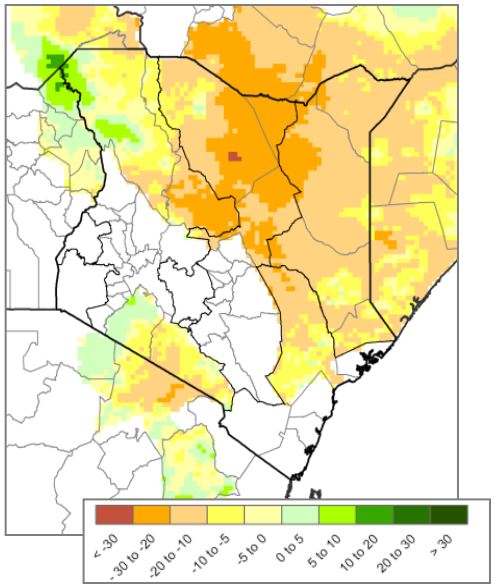
Short Rangeland Season
(August-January 2010/11)

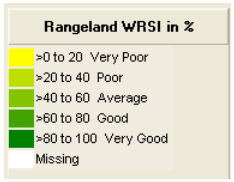




Long Rangeland Season
(Febryay-July 2011)







Vulnerability – Risk Profile

Within each administrative unit the population is divided into drought risk categories based on two dimensions extracted from household survey data:

Exposure to Drought Risk: Defined by the weight of agricultural activities in a household's total annual income

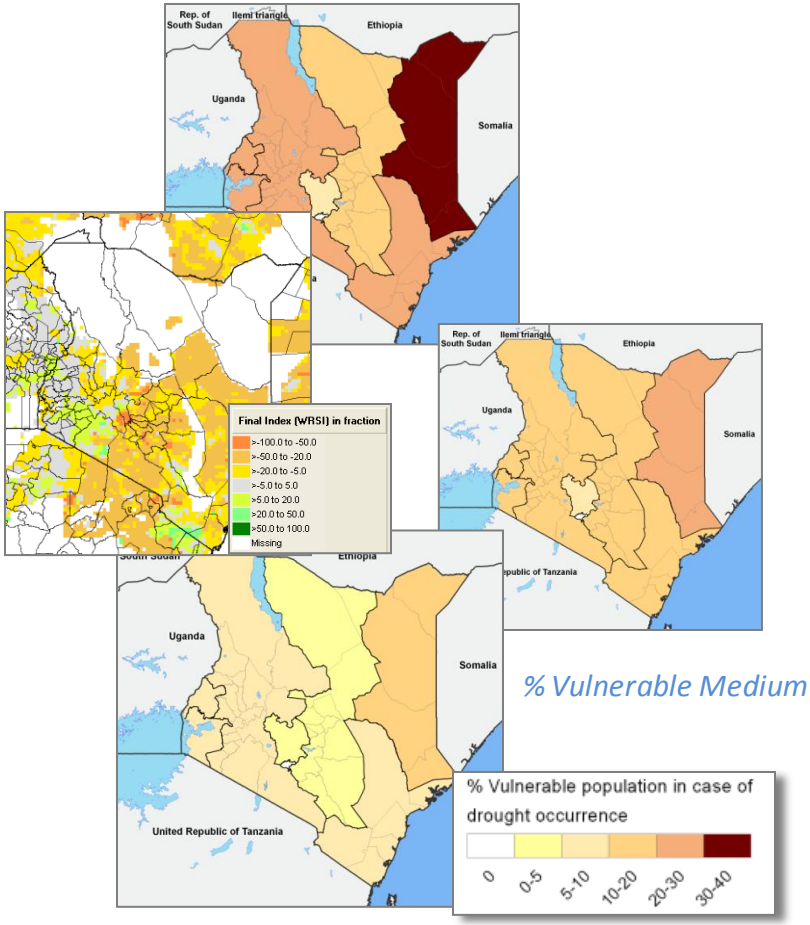
Resiliency: Household's distance from the poverty line

If a mild, medium or severe drought occurs, ARV generates high-level estimates of the people *directly* affected through impact on their livelihood

Estimates can be generated for each administrative level unit, country, region, season and across all countries using this standardized approach

As WRSI is updated every 10 days, so are these estimates

% Vulnerable Severe Drought

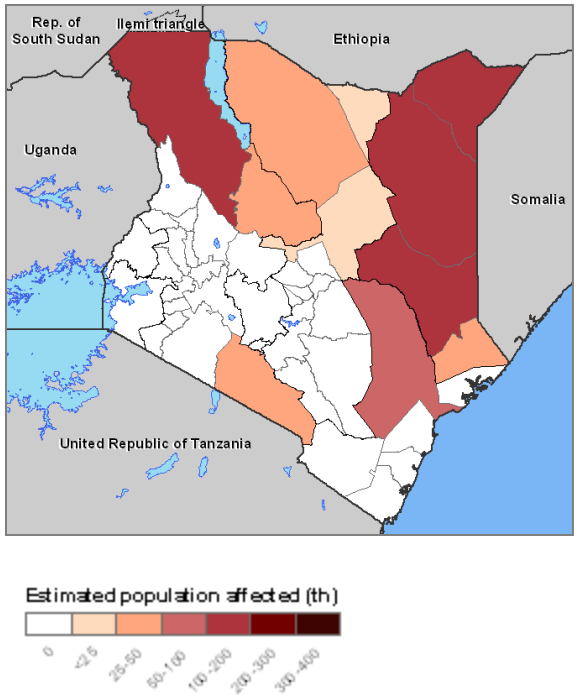


% Vulnerable Medium

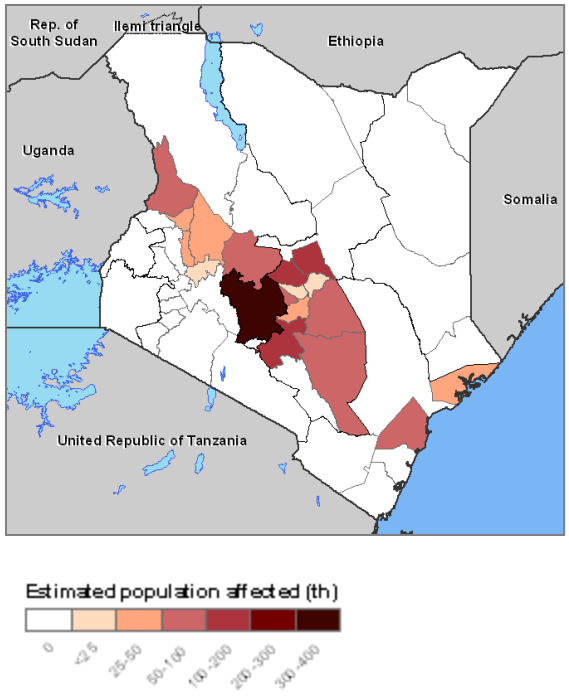
% Vulnerable Mild Drought

Vulnerability – Modelled Impact

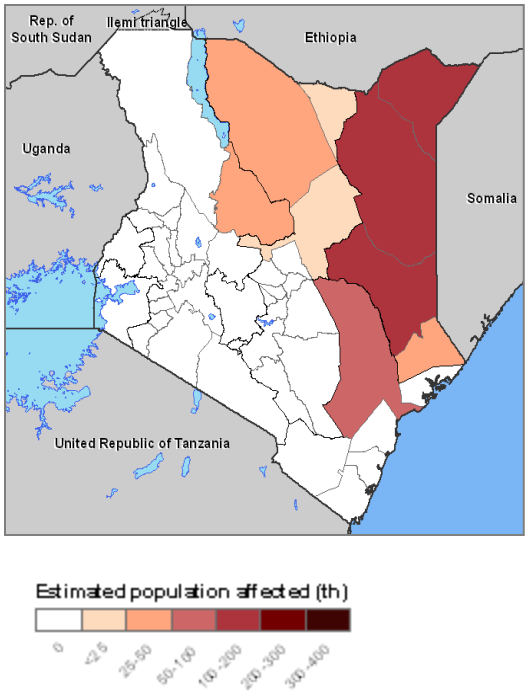
Short Rains (RL) 2010/11



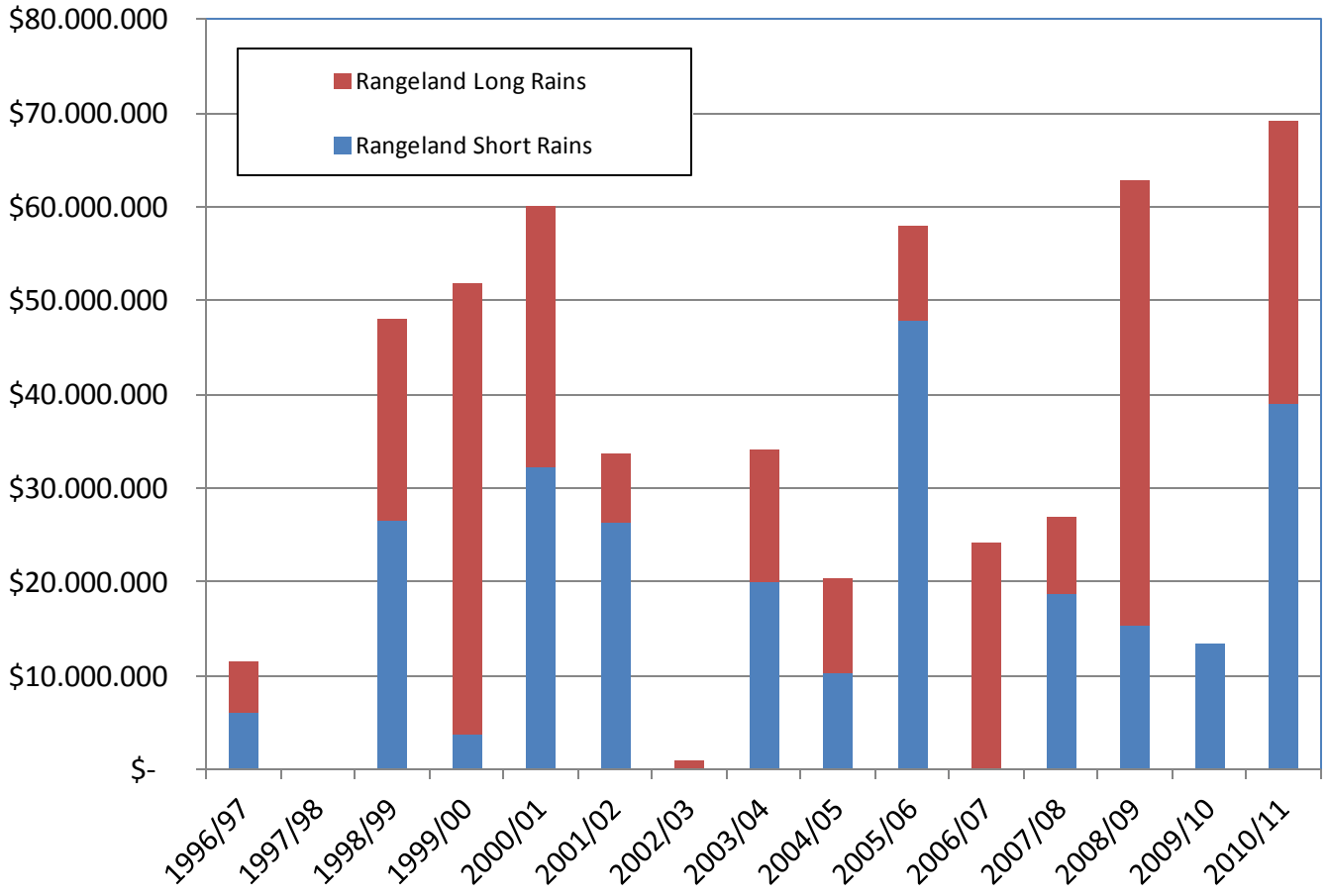
Short Rains (Ag) 2010/11



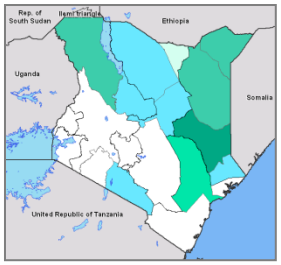
Long Rains (RL) 2011



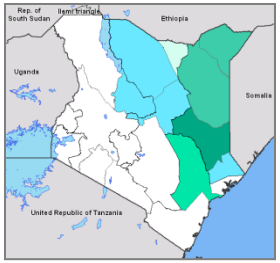
Exposure: Historical Modelled Response Cost



Short 2010/11



Long 2011



Estimated response costs (in million US$)

ARV estimates for both rangeland rainfall seasons *only*, including the impact of mild drought

- **There are a lot of frequent drought events in these areas – how best to finance this risk?**

Challenges Ahead

- **Interest from countries is high, but ultimate participation will still be a challenge**
  - 12-month in-country pre-participation process integral part of design phase
  - Design work focusing on participation incentives
  - Country ownership and regional cooperation in ARC's design and establishment
  - Flexible/appropriate contingency planning criteria
- **Other food security challenges or basis risk events**
  - Clear communication on payout criteria and limitations
  - Exploring a basis risk fund or other mechanisms to handle basis risk events
  - Contingency plans appropriate for other food security problems
  - Risk assessment can help target investments
- **Value for money**
  - Cost benefit analysis
  - Involving donors in governance structure
  - Developing M&E criteria to track impacts

ARC is one of many risk management options

Several tools are available to manage this risk as part of a layered financial risk management strategy and comprehensive disaster management plan:

1. **Risk Reduction:**
   Longer-term DRR and climate proofing investments by countries could reduce the overall financial cost of this risk over time, however while these investment take effect the risk of disasters remains

2. **Risk Retention:**
   Countries could use existing resources and programs to retain some risk and manage the impact of less severe, localized or frequent events in-country, e.g. through national reserves, annual contingency budgets and mechanisms such as safety nets, SGRs etc.

3. **Risk Financing:**
   Contingent lending could also be considered. Countries could borrow to finance responses for more extreme events on pre-agreed terms from International Financial Institutions (IFIs) and repay back over a long period of time.

4. **Risk Transfer:**
   Countries could choose to transfer risk, selecting to only receive compensation for drought events that are more extreme and less frequent in return for an annual fee, e.g. by entering into a transaction with a donor, reinsurer or by joining ARC

Where are we?

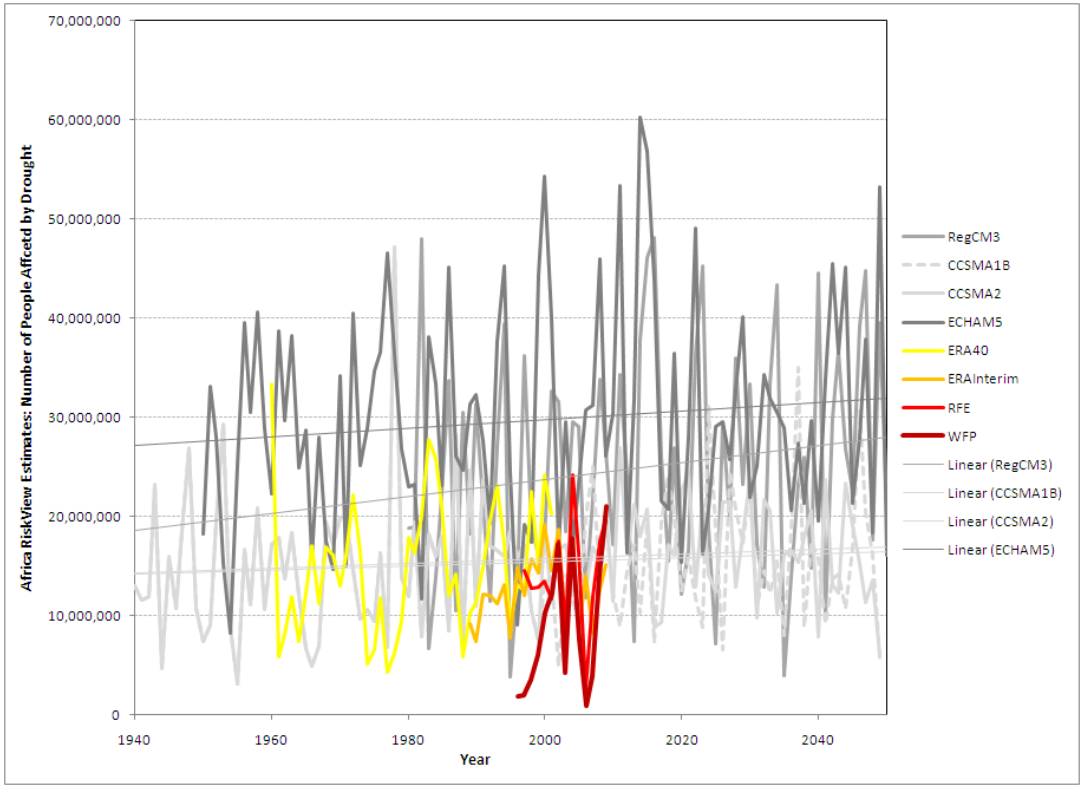
- **Key design areas still being explored:**
  - ARC contingency planning approval criteria and process
  - Premium payment requirements
  - Rebates and incentives for participants
  - Jurisdiction review for ARC Financial
  - Cost benefit analysis study
  - Monitoring and evaluation frameworks

- **Country outreach to date:**
  - 14 initial scoping missions conducted
  - 9 countries expressed strong interest in ARC
  - Country risk profile reports being completed
  - ARC technical and strategic workshops in progress
  - Baseline contingency planning and national capacity survey ongoing – ARC contingency planning peer review planned for September 2012

Climate Change Stress Tests

ARC's *Africa RiskView* software is being used for EU IMPACT2C Africa Climate Change Impact Assessments

- Climate change stress tests are being conducted by ARC Project & ENEA

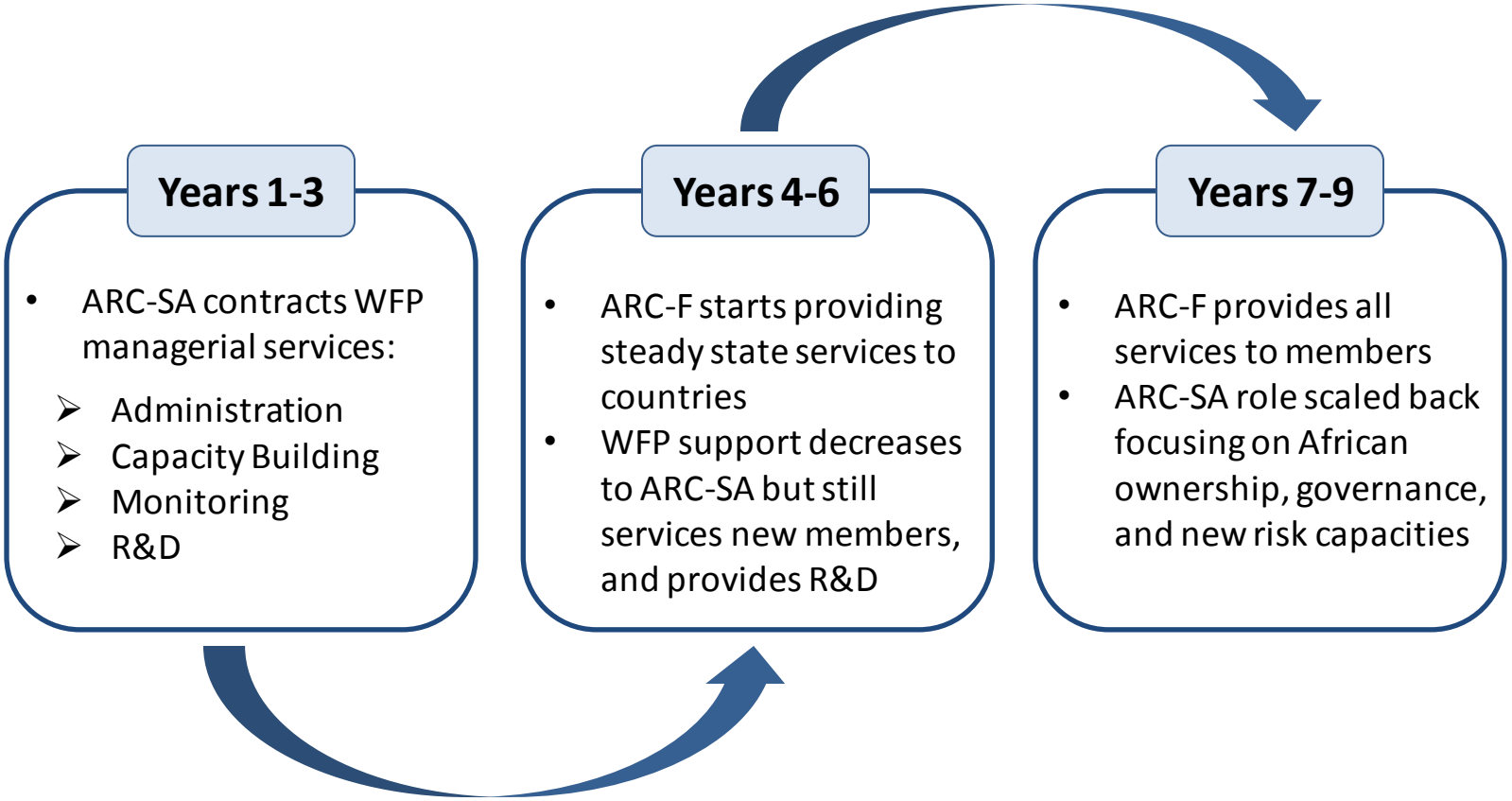


- *Africa RiskView* (ARV) estimates using historical data correspond well with historical records, but data from climate models does not replicate the recent past well
- Current research is using ARV as an impact model with new high-resolution rainfall and temperature input data from climate scenarios generated within the Africa-CORDEX framework
- Work ongoing with results expected in 2013, as a contribution to the European Union's IMPACT2C Project

Path to Self-Sustainability

Over the next nine years, WFP support to ARC-SA surges and then fades

- The 3 x 3 approach ensures a gradual but solid transition to long-term sustainability and independence from donor and WFP support



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As an African-owned, continental index-based weather risk insurance pool and early response mechanism, ARC offers an African solution to one of the continent's most pressing challenges.

Quantifying the Risk

HAZARD

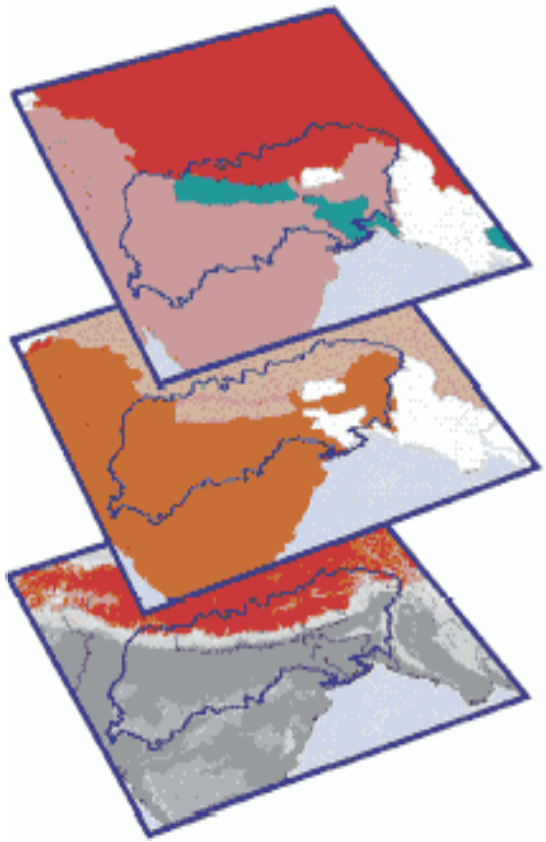
Satellite-based rainfall data for over 261,000 satellite pixels over Africa (0.1 dg x 0.1 dg or 10x10km sq near the equator) updated every 10 days.

VULNERABILITY

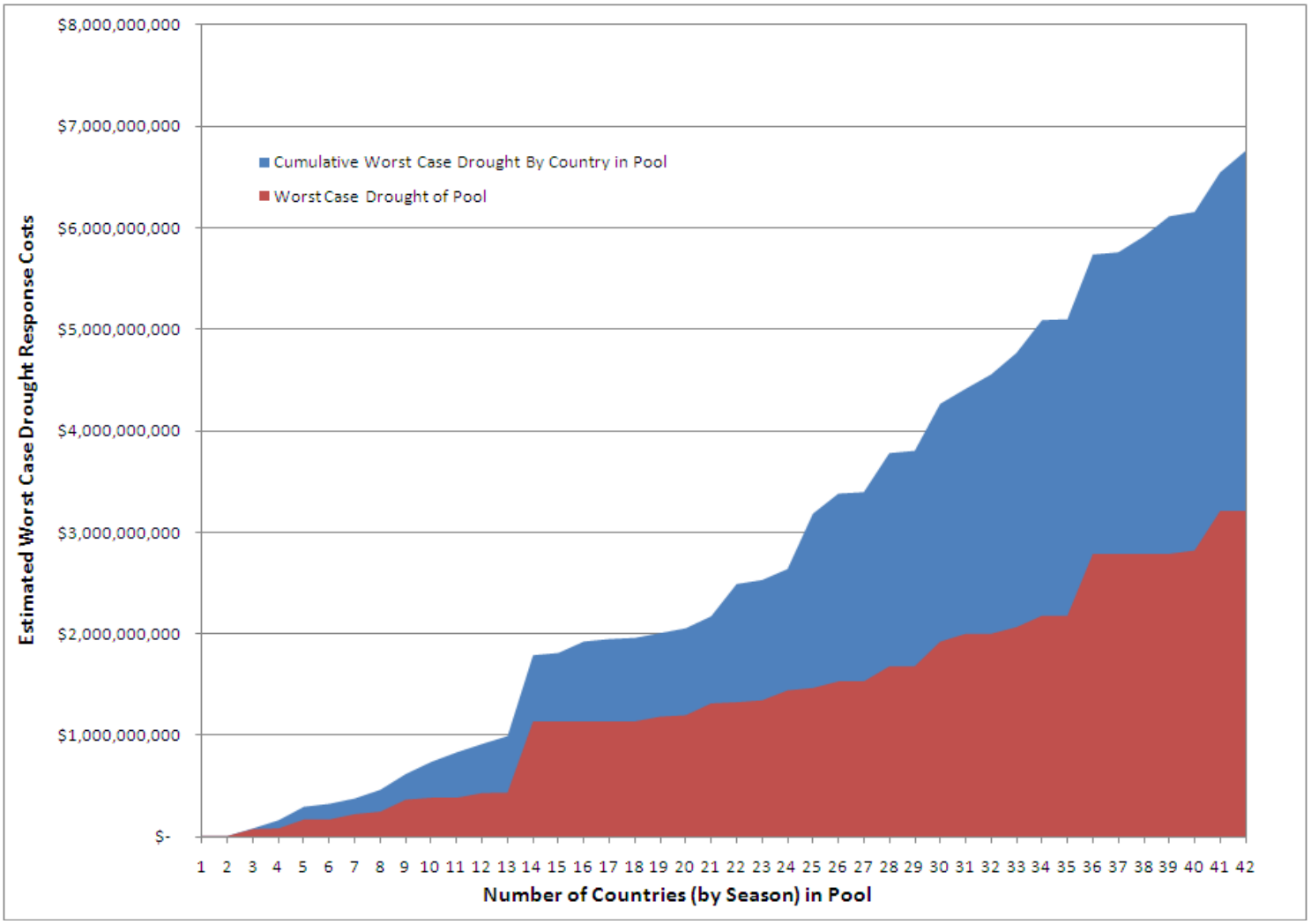
Who's at risk? Where are they? What are they growing or where do their herds graze?

EXPOSURE

In today's procurement and logistic costs, how much will it cost to assist each potential person affected?



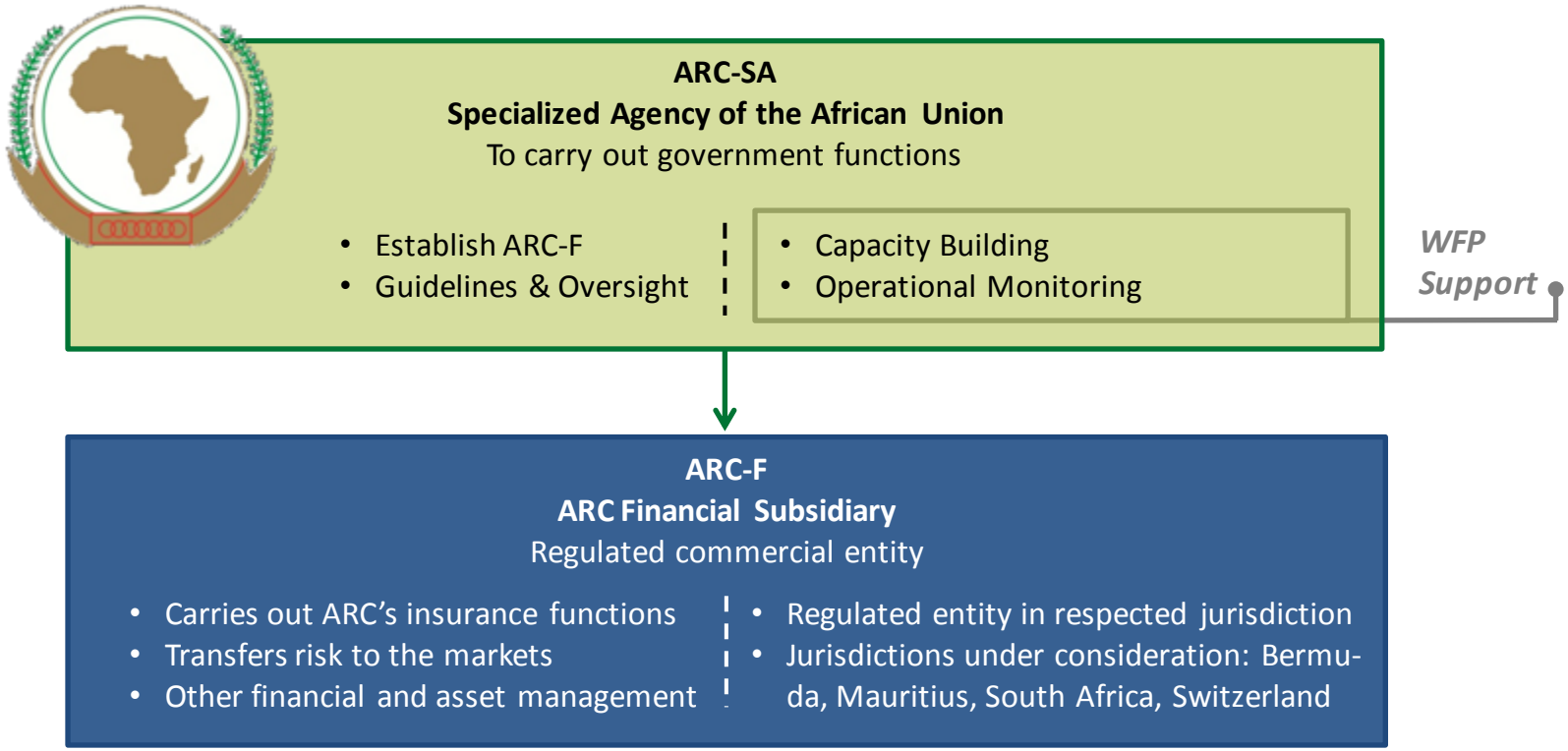
Pooling More Than Halves Fund Requirement



ARC Institutional Design

A Specialized Agency of the African Union (ARC-SA) establishing a financial subsidiary (ARC-F)

- ARC-F is established by the ARC-SA Conference of Parties (COP)
- ARC-SA appoints (and dismisses) the Board of ARC-F
- Board of ARC-F independently manages the financial subsidiary



Next Steps to ARC Establishment

ARC can be operational by mid-2013:

Date	Event
11-12 September 2012	**Experts Meeting** Negotiation of Establishment Agreement of African Union's ARC Specialized Agency between AU member states ✔
19-20 September 2012	**Contingency Planning Peer Review Meeting** • Review of contingency plan drafts for initial participant countries ✔ • Develop guidelines for contingency planning
12-16 November 2012	**Plenipotentiary Meeting** • Conclusion of Establishment Agreement of African Union's ARC Specialized Agency between AU member states • Five signatory parties needed for successful establishment
December 2012 - January 2013	**Meeting of Conference of Parties (COP)** • Election of the ARC-SA's Board of Directors by the COP, comprised by all ARC-SA member states • Election of the Executive Director • Decision on ARC-F

ARC Implementation Progress

ARV performance and effective contingency plans are key to creating value

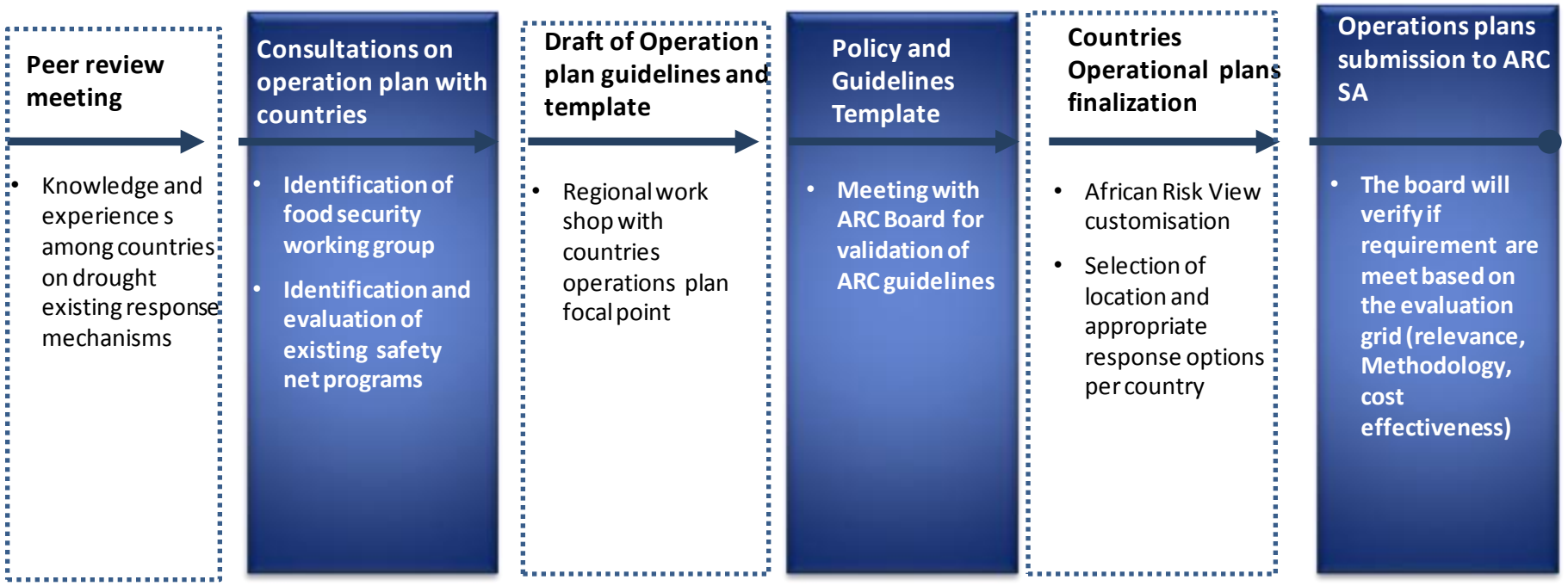
Initial Countries	ARV[1] Performance 2000-2010	Pre-Participation MoU Discussions	Operational Capacity
Ethiopia	87%	Ongoing	✓
Kenya	77%	Complete	✓
Malawi	68%	Complete	✓
Mozambique	75%	Final	TBD
Niger	75%	Complete	TBD
Senegal	82%	Complete	✓
Lesotho	68%	Complete	TBD
Burkina Faso	76%	Complete	TBD
Mauritania	67%	Final	TBD
Average	**75%**		

Other countries engaged: Botswana, Ghana, Mali, Nigeria, Rwanda, South Africa, Swaziland, Tanzania, Uganda, Zimbabwe

[1] ARV: African Risk View; PSNP: Productive Safety Net Program; GFD: General Food Distribution; SGR: Strategic Grain Reserves

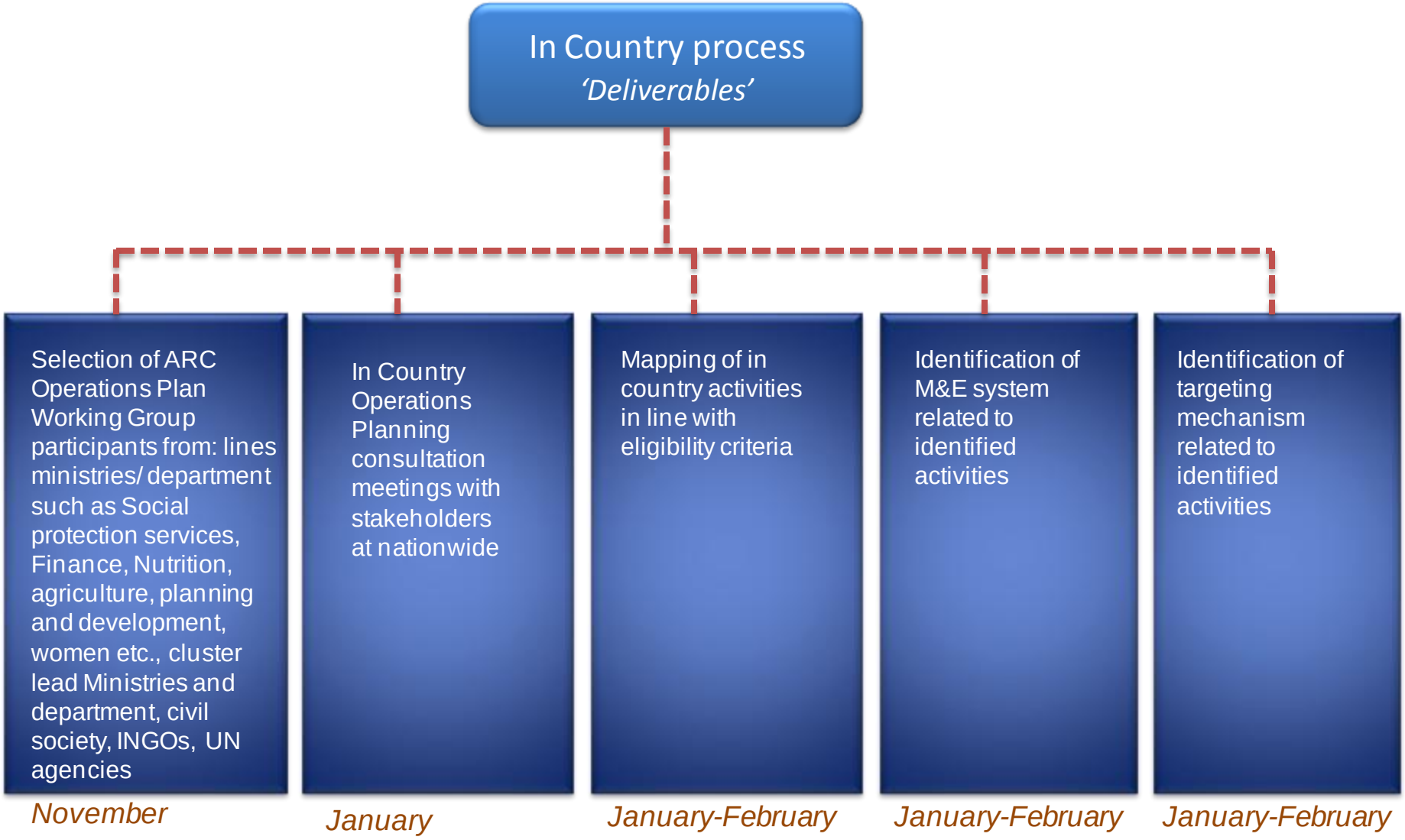
ARC: Operation Plan Process

Inclusive participation in ARC Operations Plan elaboration ensures relevant contribution and reliable documentation



This leads to grant of certificate of good standing

What will be required from Countries?



What will/could be allowed?

For activities implemented before

Basic eligibility criteria

Section	Catalytic function	Time sensitive	Livelihood saving	Duration < 6 months
»Food assistance ▪Public work ▪ Food for vouchers ▪ Targeted food distribution ▪ General food distribution ▪ Cereal sale at low price	**To ensure faster and more effective action for the overall response**	**Activity that need to start within 120 days of a payout**	**Activity that secure assets**	**Activity whose length is less than 6 months**
» Cash based ▪ Conditional cash transfer ▪ Unconditional cash transfer				
» Nutrition ▪ Supplementary feeding: children <5 ▪ Supplementary feeding for mothers ▪ School feeding				
» Livestock ▪ Animal fodder provision ▪ Water trucking: animal				

What will/could be allowed?

For activities non implemented before

Implementability criteria

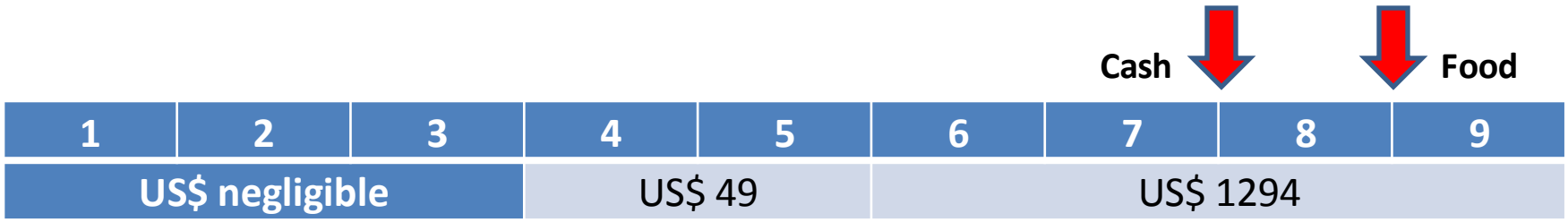
Section

	M&E	Admin/Logistics	Needs assessment	Targeting
»Food assistance ▪Public work ▪ Food for vouchers ▪ Targeted food distribution ▪ General food distribution ▪ Cereal sale at low price	**Adequate M&E system in place meeting reporting requirement: Specific Measurable Available/cost Relevant/obj Time bound**	**Existence of adequate logistic capacity for activity implementation: cash/food**	**Activity that are aligned with need assessment findings and meet affected population needs**	**Activity that can be implemented following a transparent and adequate targeting mechanism**
» Cash based ▪ Conditional cash transfer ▪ Unconditional cash transfer				
» Nutrition ▪ Supplementary feeding: children <5 ▪ Supplementary feeding for mothers ▪ School feeding				
» Livestock ▪ Animal fodder provision ▪ Water trucking: animal				

ARC Response Planning

ARC Contingency Plans are likely to fall into one of three IFPRI recommended scenarios:

The timing of relief as disaster assistance works now…



Speed of delivery from harvest

Cash & Food

Cash & Food

Immediate

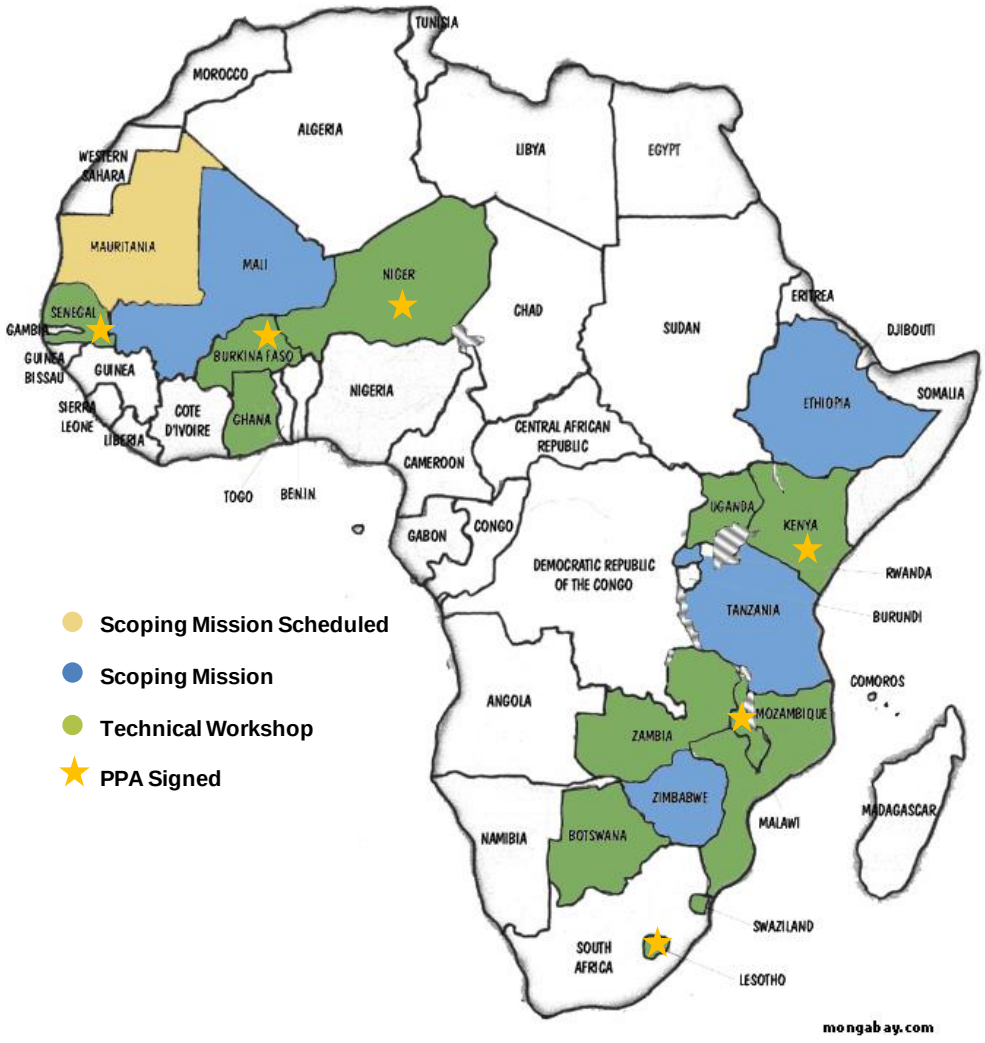
Scenario 1: Using ARC payments to supplement strategic grain reserves or drawing on regional reserves

Scenario 2: Scaling up existing Safety Nets such as food distributions, cash transfers, voucher programmes, public works programmes, school feeding initiatives, seed banks, etc.

Scenario 3: Insuring government budgets for state-contingent schemes such as debt relief, employment guarantee or farmer insurance schemes

ARC Country and Regional Engagement

- 17 Scoping Missions
- 12 Technical Workshops
- Engagement with Regional Economic Communities and at Regional Platforms



ARC Innovation

- **Linking contingency financing to credible contingency planning**
  - Contingency planning criteria will be a prerequisite for participation
  - Capacity building for preparedness and contingency planning will be a part of ARC's client service, in addition to risk financing
- **Two tiered institutional structure**
  - A (temporary) intergovernmental parent body to set and apply participation and M&E guidelines and provide capacity building services
  - A financial subsidiary to manage and execute all financial/insurance transactions
- ***Africa RiskView***
  - Technical engine of ARC, indexing drought-related food security risk across Africa for risk transfer – working with Google to develop public version
  - Work on adding flood risk ongoing
- **Incentives for participation**
  - ARC Project team exploring various design features that will encourage participation and renewals, e.g. basis risk fund, (milestone-based) rebates, technical assistance, *Africa RiskView*, facilitation of pan-African knowledge sharing…
- **Setting M&E guidelines**
  - Developing frameworks and systems for monitoring the impact and benefits of contingency funding, guided by a cost benefit analysis study (IFPRI/Oxford University)

Drawbacks to Ex-Post Disaster Assistance

- **Humanitarian assistance effectively protects lives but not always livelihoods**
- **Major (unbudgeted) costs of disaster relief**
  - Household asset depletion, national budget dislocation, long-term effects of stunting and chronic food insecurity on economic growth, etc.
- **Difficulties of targeting relief aid to the intended beneficiaries**
- **Relief can distort incentives for local production**
  - Aid is primarily imported, in-kind donations
  - If purchased in local/regional commodity markets, price spikes due to buyer footprint
  - Moral hazard: if we wait long enough, aid is free, diminishing incentives for risk reduction and retention
- **Institutionalisation of dependency**
  - Every major shock, more people fall into chronic food insecurity