

Agriculture, Food, Water and Enviroment

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The Challenges

- **Weather:** \$7.5 billion lost to extreme events in 2010
- **Water:** 884 million people lack clean water
- **Land:** 1.5 billion depend on degrading land
- **Poverty:** 1.4 billion live on <\$1.25/day
- **Hunger:** 1 billion are hungry
- **Future:** How to feed extra 1 billion people by 2025
- **Climate change:** Makes this all harder



Millions of people have no access to clean water & electricity



Over 20% of food purchased in developed countries is wasted

Drought Intensity and Frequency

	Year	Area of Coverage	No: of people affected
	1971	Widespread	150,000
	1975	Widespread	16,000
11yrs	1977	Widespread	20,000
	1980	Widespread	40,000
	1983/84	Widespread	200,000
8rs	1991/92	Widespread	1,500,000
4yrs	1995/96	Widespread	1,450,000
	1999/2000	Widespread	4,400,000
	2004/2005	Widespread	3,500,000
	2008/2009	Widespread	10,000,000
	2012/2013	widespread	??????????????

Costs of Droughts

- Huge financial expenses
 - 1999-2000 – US \$ 340 million (Ksh 25 Billion)
 - 2004/2005 - US \$ 400??? Million (32 billion)
 - 2008/2009 - US \$ 600 Million
- Loss in Livelihoods
 - 30-40% Cows
 - 25-30% sheep lost
 - 15-30% of goats
- Social Costs
 - Damages Social safety nets
 - Desperation and Helplessness
 - Drop from Production systems

Global Food Situation

Demand Side

- Increasing demand for animal feeds in emerging economies
- Increasing demand for food in growing economies
- Competition with Biofuels
- Increased panic and speculation in world markets
- High Food Prices

Supply Side

- Poor weather condition
- High fuel and fertilizer prices raising production costs
- Low productivity growth in recent years leading to low cereal stocks
- Long term underinvestment in agriculture
- Export restrictions imposed by some countries

Maize

Year	Production	Consumption	Difference
	(tons)	(tons)	(tons)
2007	2.5	3.3	(0.7)
2008	2.0	3.3	(1.4)
2009	1.8	3.5	(1.7)
2010	2.9	3.8	(0.9)
2011	3.0	4.1	(1.1)
2015	3.1	4.2	(1.2)

Stable Production Systems

- **Destruction of water catchment**
 - Loss in forest cover – Estimated at 1.6% of total area
 - Cultivated river banks
 - Destruction of wet areas
 - Overexploited water resources
- **Depend on Rainfed Irrigation**
 - Less than 20% of potential land is irrigated
 - 98% of crop and livestock production is rainfed
 - Slow pace of irrigation dev't
 - High cost of dev't and low returns on investment
 - Low water availability and wasteful practices
 - Drying rivers and increasing competition for water
 - Limited financing
- **Desired state:-Dev't and sustainable utilization of the irrigation potential**

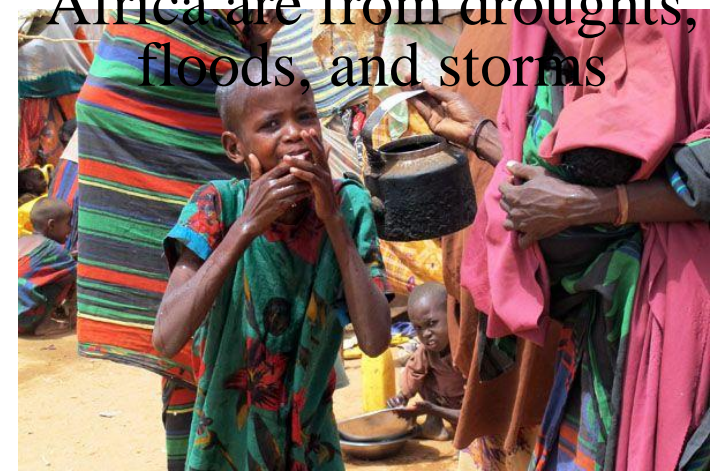
Who is most at risk?

Smallholders and Rural communities

- Every year climate-related disasters affect >200 million people costing over \$70 billion
- 87% of households in 3 SA countries slide in and out of hunger when exposed to shocks
- Shocks (drought/disease) increase vulnerability and asset ownership at household level



90% of economic losses in Africa are from droughts, floods, and storms



Ethiopia children born in disaster are 41% more likely to be stunted

What is Climate Smart Agriculture

- Resilience: respond, recover and adapt
- Raised Food Security and Incomes
- GHG Reduction
- Balance between high agricultural productivity, environment

What is climate smart agriculture

- **Sustains the health of the land and increases productivity**
- **Does not pollute, degrade land or loss of forests and biodiversity**
- **Delivers food, fibre, fuel and incomes, carbon sequestration and reduce GHG emissions**



Farmer in Burkina Faso with good harvest using planting pits



Farmers produce what we need

Possible role of Private Sector

- **Climate smart agriculture produces climate smart products, and labels can take these to markets**
- **Dryland Seed Ltd is using seed from the KARI to produce and distribute drought resistance maize.**
- **1800 farmers and 800 agro-dealers trained in seed multiplication**



Cafédirect products



Ruth Musila used drought resistant maize and did not lose her crop

Markets matter

- **Linking carbon financing to reduce barriers that restrict farmers' opportunities**
- **Partnerships can remove obstacles to input/output markets, and enhance smallholder investment**



Danish farmers are producing 20% of the country's renewable energy



Markets are crucial to the lives of women in Tanzania

Reducing risks

- **\$1 invested in insurance-for-work results in at least three times the value in Ethiopia**
- **This has led to uptake from 200 to 13,000 HH in three years and has paid out to 1,800 HH**
- **Index based insurance to 80,000 smallholder farmers in Mali and Burkina Faso**



When drought hits safety nets help build the resilience of communities



Armyworms are a major pest and risk to farmers – insurance can reduce risk

Mitigation funding – the icing on the cake?

- **Its best to focus funds on increasing yields rather than cash payments**
- **2500 farmers adopted in Kenya without cash incentives**
- **Extension services need to work!**
- **Kenyan farmers have seen yields increase by 15-30%, and >20,000 farmers are practicing climate smart agriculture**
 - **We have the methods to do this verified by VCS that can be scaled up**
- **Carbon financing needs to be augmented**



Terraces and composting deliver higher yields and sequester carbon



Kenyan farmers are already benefiting from mitigation funding

Getting Policy and Finance Right

- **Voice of the communities must be given opportunity to influence policy**
- **Water policies need to shift towards small-scale technologies**
- **Policies should be designed for the smallholders, risk reduction and the landscape**
- **Climate financing needs to work for smallholders and be combined with private & public financing**
- **Involvement of commercial banks & insurers are key to increase finance**
- **Extension services!**



We need to give voice to people like Tekleweini Girmay and her family



Climate smart means landscape smart