Association for Strengthening Agricultural Research in Eastern and Central Africa

ASARECA
Transforming Agriculture for Improved Livelihoods

Promoting community-based adaptation to climate change: The niche of appropriate infrastructure in ECA

Presentation made at the 'Africa Climate Resilient Infrastructure Summit (ACRIS)

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By

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Key argument

The Eastern and Central African (ECA) sub-region is one of the most vulnerable regions to impacts of climate change, but with considerable potential to minimise the effects of such changes through the deployment of innovative infrastructure and institutions

Structure of the presentation

- Key characteristics of the sub-region
- Documented impacts of climate variability & change
- Strategic areas of intervention to minimise climate-induced impacts
- Lessons learnt/success factors
- Opportunities
- Key message

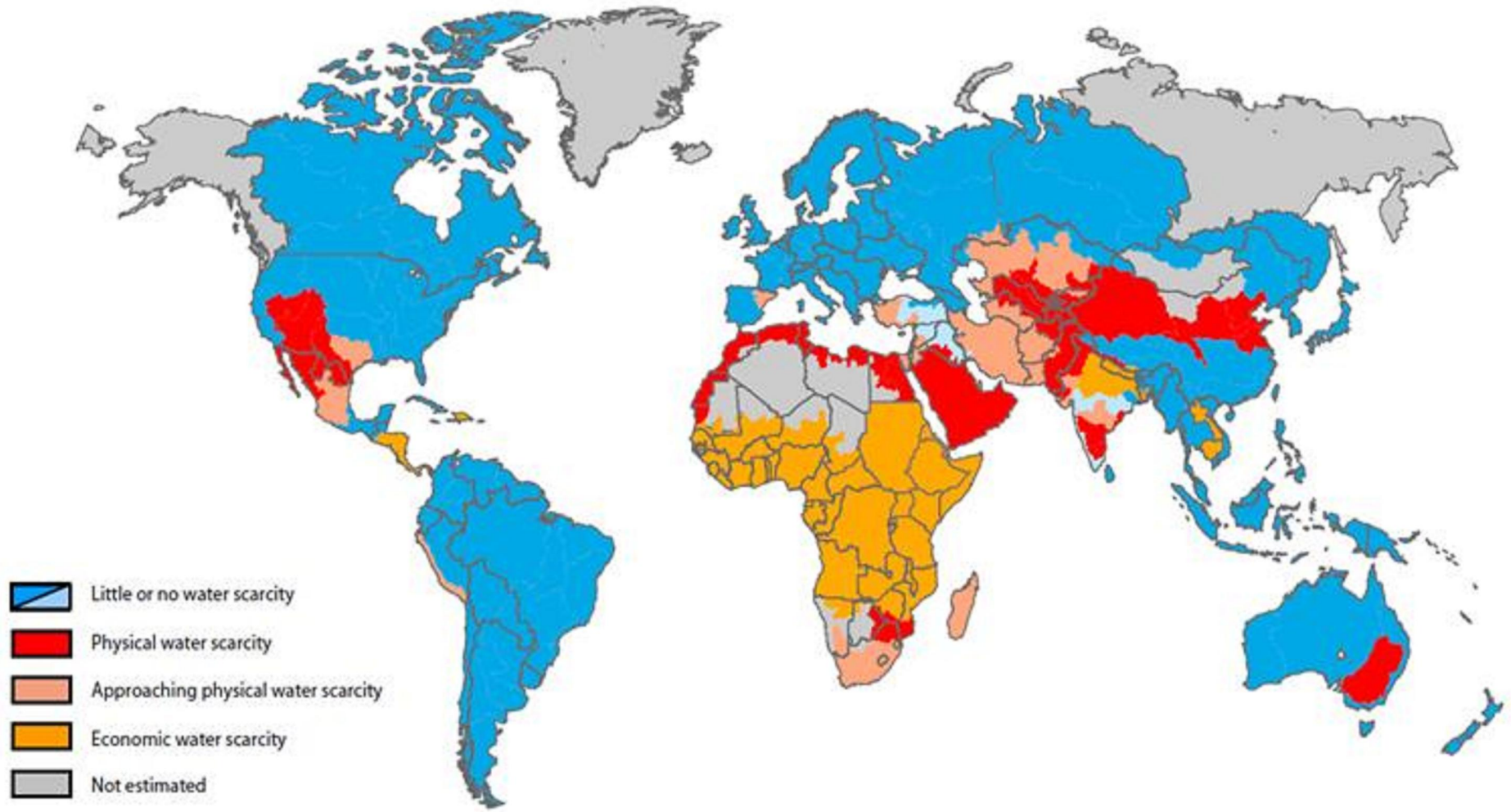
About ASARECA

- **ASARECA:** Established 1994 with 11 member states: Burundi, D.R. Congo, Eritrea, Ethiopia, Madagascar, Kenya, Rwanda, South Sudan, Sudan, Tanzania Uganda.

- **Mission:** To enhance regional collective action in adoption of climate smart technologies and innovations

Key characteristics – contributing to increased vulnerability of populations to CC

Global status of water resources



Effects of increasing seasonal variability

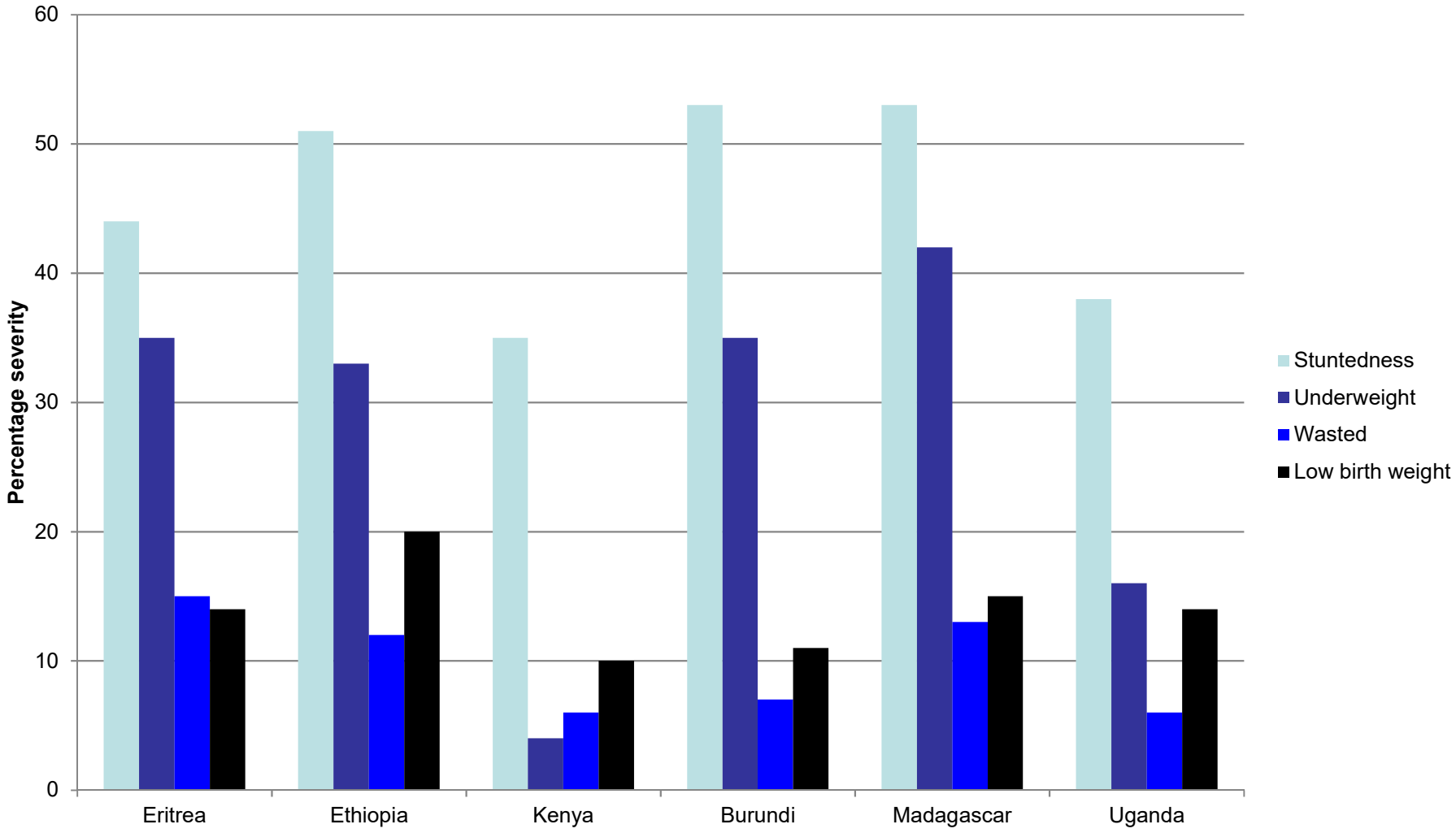
Accelerated loss of vegetation cover

Forest loss and hence loss of key ecosystem services

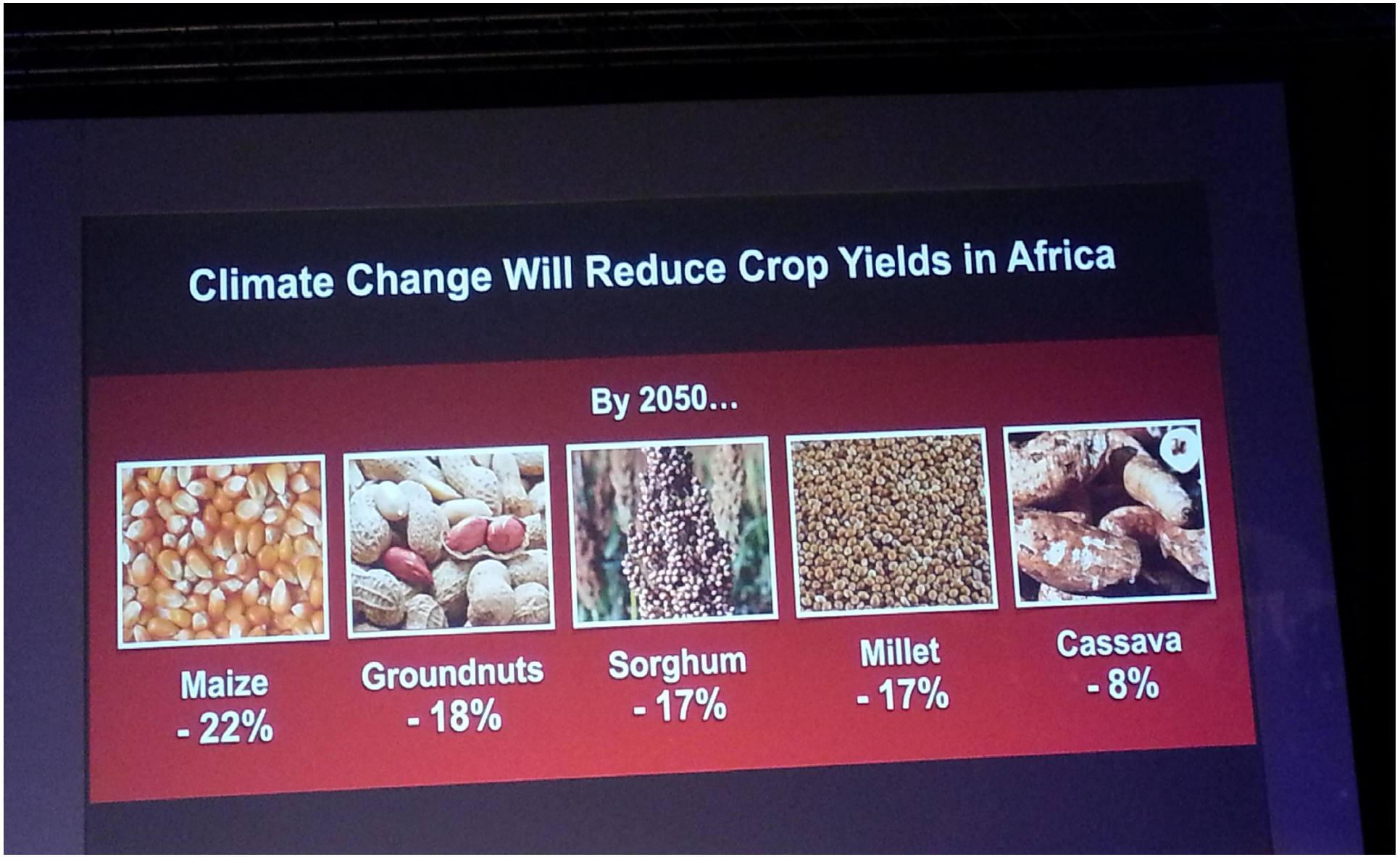
- **Ethiopia - Between 1990 and 2005, the country lost 14% of its forests or 21,000 km²**
- **Kenya - in 1963, forest covered 10% of land in Kenya and by 2006 that dropped to 1.7%**
- **Tanzania - between 1990 and 2005 an estimated 412,000 ha/yr were cleared, i.e., about 1.1% of the total forest area**

Country	July 1, 2013 (estimated)	Average relative annual growth (%)	Average absolute annual growth	Estimated doubling time (Years)
Ethiopia	86,614,000	2.67	2,253,000	26
D. R. Congo	74,618,000	3.23	2,334,000	22
Tanzania	45,950,000	2.69	1,204,000	26
Kenya	43,291,000	3.01	1,266,000	23
Uganda	35,363,000	3.61	1,232,000	20
Sudan	35,150,000	2.52	863,000	28
Madagascar	21,852,000	2.75	585,000	26
Rwanda	10,780,000	2.63	276,000	27
South Sudan	10,334,000	4.40	436,000	16
Burundi	9,023,000	2.36	208,000	30
Eritrea	4,980,000	4.05	194,000	17
Total	**377,955,000**	**3.08**	**10,851,000**	24

Nutrition status at a glance



Documented impacts of climate variability


Climate Change Will Reduce Crop Yields in Africa
By 2050...
Maize
- 22%
Groundnuts
- 18%
Sorghum
- 17%
Millet
- 17%
Cassava
- 8%

Strategic areas of intervention to minimise climate-induced impacts at community level

- Creation of knowledge and information hub on climatic conditions – long-term & downscaled
- Enhanced application of ICT in dissemination of seasonal and climate information
- Establishment of learning platforms/infrastructure across borders
- Promotion of market-lead innovations/infrastructure dev. for the diversification of livelihoods
- Efficient use of agricultural water & sustainable agricultural intensification


Road side ponds to recharge groundwater
and enhance in-situ moisture in soils

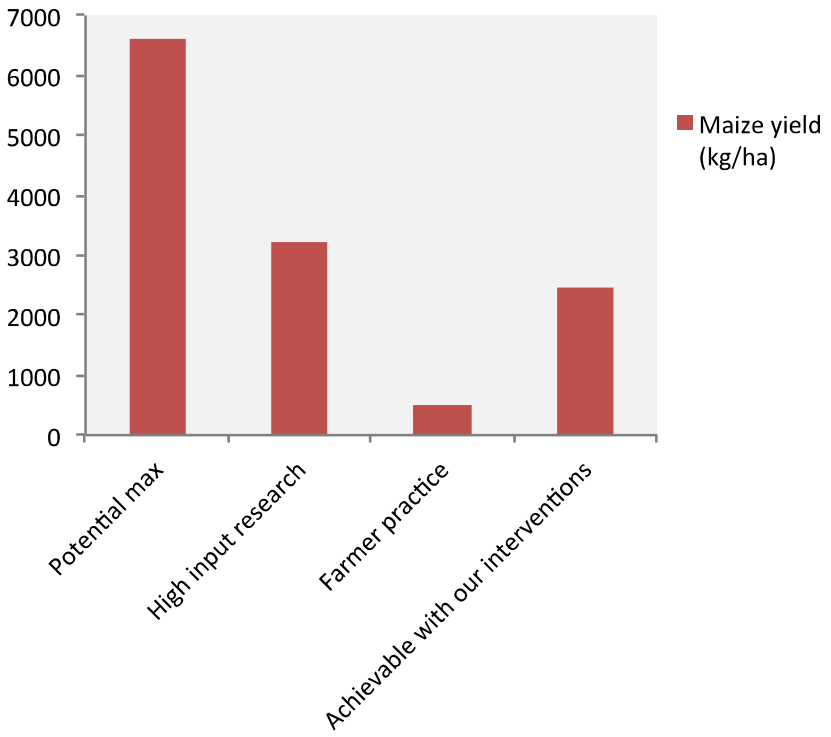
Agricultural landscape transformation through IWM

Improving efficiency of water use in smallholder agricultural systems

Traditional watering system

Mechanised system

Increased food security



- In Kenya, maize yields increased from <500 kg/ha to 1.2-2.5 t/ha . Over 70% of the 480HH are food-secure
- Eritrea - sorghum yields increased from 600kg/ha to 1.5-2t.ha due to adoption of SWC technologies

Increased incomes

- **Onion yields in Madagascar increased from 10 - 25t/ha due to prudent mgt of water & other input- farmers were able to earn additional income of US$2,500/ha/yr from the sale of onions & potatoes during off-season. Most farmers are 60% food-secure**

- **Market-oriented agricultural products processing and value addition infrastructure – honey processing, bulking facilities, packaging interventions have facilitated the net income from household farming by over 25%**

Market-oriented aquaculture development

Weather-based advisories

This advisory is a collaborative effort of the following institutions

Kenya Agricultural Research Institute

Kenya Meteorological Dept.

International Crops Research Institute for the Semi-Arid Tropics

Ministry of Agriculture

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ASARECA
Transforming Agriculture for Improved Livelihoods

Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA)

WEATHER BASED AGRO-ADVISORY FOR KALII WATERSHED

MARCH-MAY 2013

Additional Information

- Farmers are encouraged to take advantage of subsidized farm inputs provided by the Government through the National Cereals & Produce Board (NCPB) to improve productivity
- Farmers are also advised to take advantage of small grants provided by the Government through the Equity bank & AFC to buy the necessary inputs and increase productivity
- Farmers are encouraged to take up fish farming and benefit from support from the Fisheries Dept. under the Economic Stimulus Program

Important Note

The information provided here is general information based on the March-May 2013 seasonal forecast issued by Kenya Meteorological Department.

The information should be used in conjunction with the forecast updates issued by KMD and technical advice provided by the nearest agricultural extension office.

Enabling climate data management

- Installed community-based rain-gauges & automated weather stations
- Downscaled forecasting – reduction of climate related risks – 6,000 farmers receiving climate information every month (SMS)

Crop-livestock integration – water harvesting

- Stored water used for market oriented vegetable production under drip irrigation. Water pumped using gender friendly treadle pumps after modification by ASARECA

Impact

- Through the intervention, fodder availability increased by 76%; milk yield by 78.7% and average cash income by 52.3% (for about 512 households)
- Yield of Napier under *Tumbukiza* increased from 3t ha^{-1} to 6.9t ha^{-1} (230% increment).

Success factors

1) Use of innovation & learning platforms to facilitate interaction among stakeholders along the value chain

2) Capacity strengthening of communities to enhance adoption and utilization of technologies and innovations

3) Market driven approach to community-based infrastructure development

4) Integrated Watershed Management – Ecosystem services improvement

Key messages

- **Enhanced community-based resilient infrastructure development stands a good chance of promoting inclusive economic and social growth**
- **Strategic partnerships – improves community-adaptive capacity**
- **Priority infrastructure investment areas include:**
  - Bulking facilities to reduce agricultural products wastage
  - Efficient water management facilities – irrigation water delivery systems, storage, water harvesting,
  - Aquaculture development (inland fisheries development)
  - *ICT system to support agro-advisories*

Thank you – we appreciate the support from the WB, EU, DFID, CIDA, SIDA, COMESA, & IDRC