

Global agenda for climate-smart agriculture and soil management

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Sustainable farm Management Aimed at Reducing Threats to SOILs under climate change

Climate Smart Agriculture



Climate-Smart Agriculture:
What is it? Why is it needed?



Food and Agriculture
Organization of the
United Nations



RESEARCH PROGRAM ON
Climate Change,
Agriculture and
Food Security



Food and Agriculture Organization
of the United Nations

<http://www.fao.org/home/en/>



CGIAR

RESEARCH PROGRAM ON
Climate Change,
Agriculture and
Food Security



CCAFS

<https://ccaafs.cgiar.org/>

What does CSA aim to do?

- Climate-smart agriculture promotes production systems that:
 - Sustainably increase productivity,
 - Increase resilience (adaptation),
 - Reduce/remove GHGs (mitigation), and
 - Enhance achievement of national food security and development goals.

www.fao.org/climatechange/climatesmart/en



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**AFRICA CSA ALLIANCE
LAUNCHES NEW WEBSITE**
www.africacsa.org



Climate-smart agriculture

SUCCESS STORIES

**FROM FARMING
COMMUNITIES
AROUND THE WORLD**



<http://www.fao.org/climate-smart-agriculture/en/>

CLIMATE SMART AGRICULTURE

Scientists' perspectives



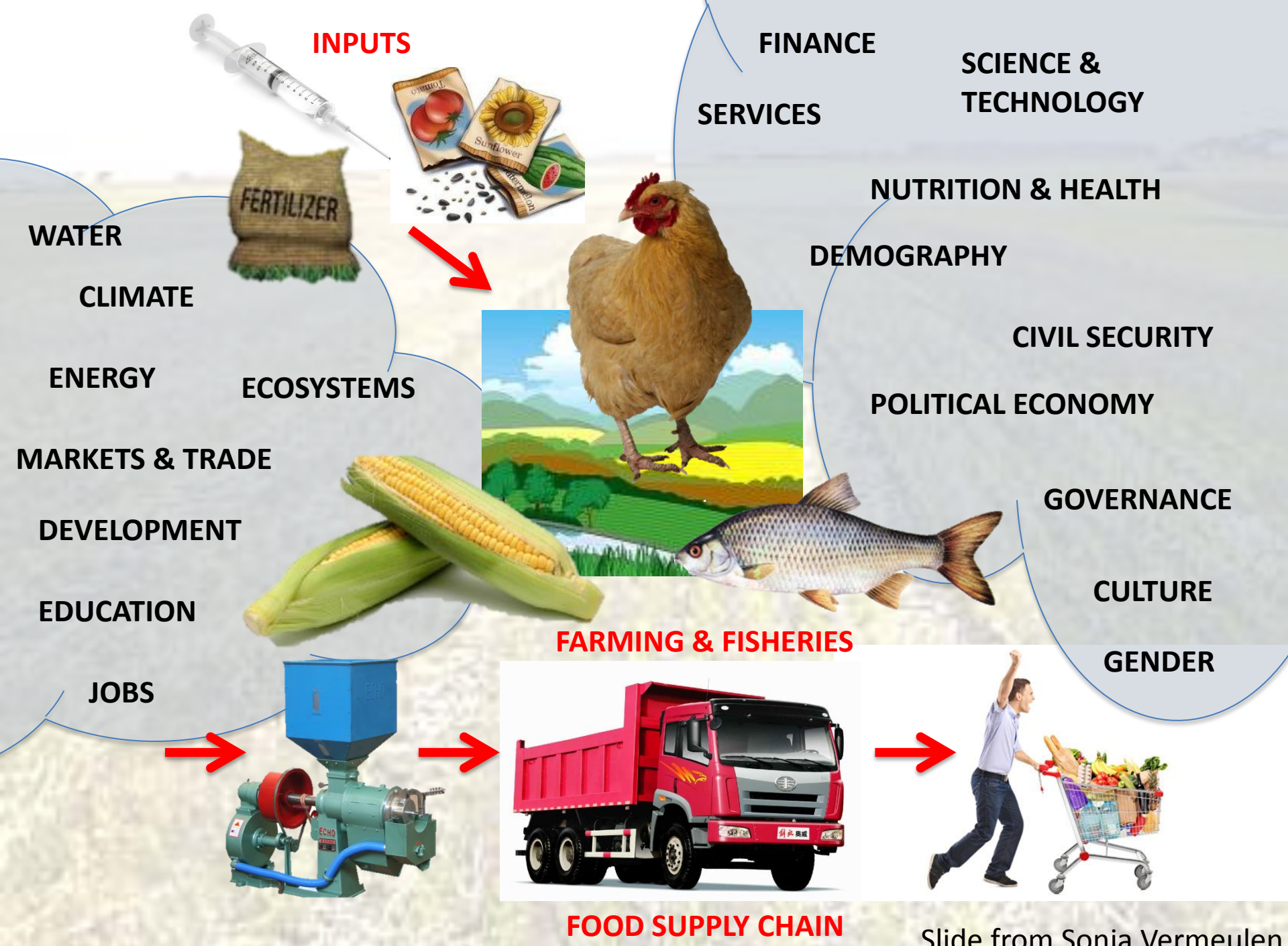
<http://www.fao.org/climate-smart-agriculture/en/>

Global Alliance:

GACSA

GLOBAL ALLIANCE FOR CLIMATE-SMART AGRICULTURE

<http://www.fao.org/GACSA/en/>





So where do soils fit it?



2015 INTERNATIONAL YEAR OF SOILS

The IYS 2015 aims to increase awareness and understanding of the importance of soil for food security and essential ecosystem functions.

The IYS website is the main platform to share information and relevant resources with different partners.



World
Soil Day



<http://www.fao.org/globalsoilpartnership/iys-2015/en/>

How does soil organic carbon and climate change interact?

- Soils contain vast quantities of carbon (3 x C in the atmosphere), and ...
- ... small changes in the global soil organic carbon stock have considerable impacts on atmospheric CO₂-concentrations
- It is therefore of critical importance to assess the response of soil organic carbon to climate change.

Benefits of soil C sequestration

- Stores atmospheric C
 - Cost effective climate mitigation measure
- Improved water holding capacity
 - buffer against drought
- Improved soil fertility
 - nutrient store and supply
 - Improved productivity / yields
- Improved soil structure
 - improved workability
- Improved habitat for soil organisms
 - improved biodiversity

The 4 ‰ initiative

Key figures

24 % of global soils are degraded at various levels, including 50 % of agricultural soils [source: Bai et al., 2013]

1 500 billion tonnes of carbon are stocked in soil organic matter, which is twice more carbon than atmospheric CO₂ [source : IPCC, 2013]

1,2 billion tonnes of carbon could be stocked every year in agricultural soils which represents an annual rate of 4 ‰ compared to the surface soil horizon [source : IPCC, 2014]

Every years crop production in Africa, Asia and South America could increase by **24/40** millions, by increasing soil organic matter by 1 tonne/ha [Lal , 2006]

1,2 billion USD is the economic loss in crop production due to soil degradation [FAO, 2006]



Conclusions

- Soils are a vital component of resilient agricultural systems (higher soil carbon makes soils more resilient)
- Soils are vital for climate change mitigation (as a sink for atmospheric carbon dioxide)
- The Climate Smart Agriculture and 4 $\%$ initiatives can easily be aligned
- SmartSoil has undertaken work to look at how changes in soil C can create carbon sinks, and how they might help to improve cropland productivity
- The presentations and discussions today will help to shape potential European contributions to Climate Smart Agriculture and soil carbon sequestration (e.g. 4 $\%$) targets for the future
- SmartSoil will contribute to the lasting legacy of the UN International Year of Soils in 2015.



Thank you for your attention



SmartSOIL

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