



Adapting to a Changing Climate - Responses of German Technical Cooperation

SEMINAR ON CLIMATE CHANGE AND AGRICULTURE TRADE:
RISKS AND RESPONSES

Washington D.C., 22-23 September 2009

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Agriculture and Adaptation

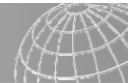
- challenge: significant reductions in agricultural productivity are expected to be caused by climate change
- Direct effects on agricultural systems: changes in rainfall, temperature, growing seasons
- Likely consequence: depression in major crop yields, changes in suitable crop growing areas, **increase in pests and diseases**
- Farmers will be directly affected by climate change





Adaptation

- depends on the perception of the problem and on the individual farmer choices (which crops, planting dates, livestock management, irrigation)
- influenced by:
 - Farmer's experience
 - Market distance as source of information and exchange
 - Availability and quality of extension services
 - Access to resources for adaptation
 - Land ownership
 - Pest and Disease Management



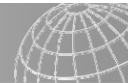
Supporting Adaptation through

- Extension services
- Improved farmer education
- Collection and testing of good agricultural practices
- **Supporting agricultural research**
- Investments in infrastructure and market linkages
- Provision of information, development of institutional capacities and policies
- Supporting policies





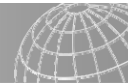
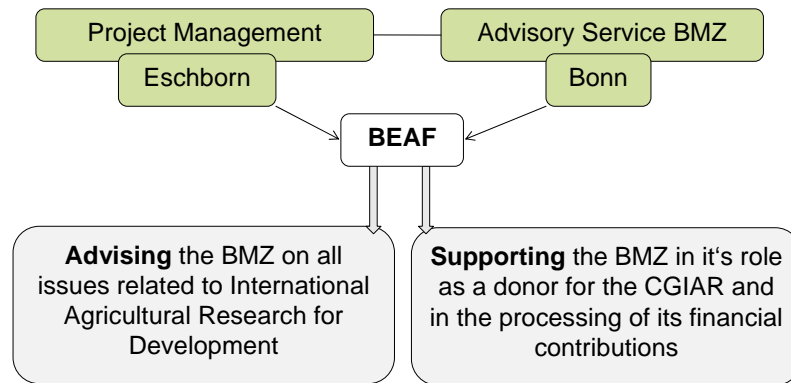
- Supports *agricultural research for development* to identify adaptation measures (BEAF)
 - Collects and systematizes *good agricultural practices*
 - Supports adaptation measures such as introduction/spread of *drought resistant seeds*, *diversification of agriculture* (also income diversification), *sustainable agriculture*
 - Gives advice in the development of *adaptation strategies* such as the adaptation of production systems (participatory adaptation strategy development)
- ➔ **SPS not as stand-alone**, but integrated (e.g. value-chain approach, GAP, extension service, etc.)



- Supports adapted *value chain* development (in the future)
 - Supports *extension services* (CC awareness)
 - Supports the development of *CC information basis*
 - Fosters access to *micro-insurances / weather insurances*
 - Promotes access to *financial support* for adaptation (e.g. strengthen smallholder producers' capacity to benefit from carbon markets)
- ➔ Fosters adaptation capacity, reduces vulnerability



Advisory Service on Agricultural Research for Development (BEAF)



Project Funding Procedure

- Only one proposal per year and CGIAR center or 'Challenge Program'
- up to 3 years, max. 1.2 Mio. €
- According to one of the 7 research priorities
- Team of experts evaluates the proposals and gives recommendations
- BMZ decides on funding, GTZ does the stipulation
- ➔ Guidelines: <http://www.gtz.de/en/themen/laendliche-entwicklung/1815.htm>

Projects with SPS themes

- Since 1998 about 50 research projects were or are funded on plant or animal disease control or prevention



“Adaptation of African Agriculture to Climate Change”

- 3 Years (2008-2010)
- 9 Projects with Leading Scientists from:
5 CGIAR-Centers (CIP, ICRISAT, IFPRI, ILRI, IWMI)
2 German Universities: Hohenheim and Goettingen
1 Leibniz Center: ZALF
- 10 million € in total

Aim

- Climate Change differs locally, locally adapted measures.
- Capacity development

Through a cooperation of research institutes with either farmer organizations / national agricultural research centers / non governmental organizations.



Modelling / Political Strategies

- Leibniz-Centre for Agricultural Landscape Research (ZALF)
Climate change impact assessment and adaptation options in vulnerable agro-landscapes in East Africa
 - Partner institutions: ICRAF, PIK
 - Collaborating institutions: Sokoine University of Agriculture, Wami Ruvu Basin Water Office , Tanzanian Meteorological Agency, University of Dar es Salaam, Ministry of Agriculture and Food Security Tanzania
- International Food Policy Research Institute (IFPRI)
Strategies for Adapting to Climate Change in Rural Sub-Saharan Africa: Targeting the Most Vulnerable
 - Partner institutions: PIK, ZALF
 - Collaborating institutions: ASARECA, FANRPAN



Pictures by ZALF



Adaptation to Water Deficiencies



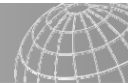
Picture by IWMI

- International Water Management Institute (IWMI)
Re-thinking water storage for climate change adaptation for sub-Saharan Africa
 - Partner institutions: PIK and Center for Development Research (ZEF), University of Bonn
 - Collaborating institutions: Ethiopian Economic Ass., Eth.Policy Research Institute; Water Resource Institute, Univ. of Ghana
- Department Crop Water Stress Management in the Tropics and Subtropics, University of Hohenheim
Developing rice and sorghum crop adaptation strategies for climate change in vulnerable environments in Africa - RISOCAS



Picture by Uni Hohenheim

- Partner institutions: African Rice Center (WARDA),
 - Collaborating institutions: CIRAD, France/Senegal/Madagascar; IER-Institute d'Economie Rurale, Mali; FOFIFA-Le Centre National de la Recherche Appliquée au Développement Rural



Adaptation of Crops /- Cultivation



Picture by ICRISAT

- International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
Community management of crop diversity to enhance resilience, yield stability and income generation in changing West African climates
 - Partner institution: University of Hohenheim, Germany
 - Collaborating institutions: IER, INERA, INRAN, SARI, AGRHYMET
- International Potato Center (CIP)
Participatory development and testing of strategies to reduce climate vulnerability of poor farm households in East Africa through innovations in potato and sweet potato technologies and enabling policies



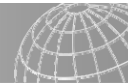
Picture by CIP

- Partner institution: Max Planck Institute for Meteorology, Hamburg, Germany
 - Collaborating institutions: KARI, EIAR



Adaptation of Landuse and Livestock

- Center for Tropical and Subtropical Agriculture and Forestry, University of Goettingen
Adaptation of Landuse to Climate Change in Sub-Saharan Africa-ALUCCSA
 - Partner institution: ICRAF, ZIAF-Centre for Interdisciplinary Africa Research, Frankfurt, Germany
 - Collaborating institutions: INERA, AGRHYMET
- International Livestock Research Institute (ILRI)
Supporting the vulnerable: Increasing the adaptive capacity of agro-pastoralists to climatic change in West and Southern Africa using a transdisciplinary research approach
 - Partner institution: PIK and DITSL-German Institute for Tropical and Subtropical Agriculture, University of Kassel, Germany
 - Collaborating institutions: IIAM, IER; AU, Inter-African Bureau of Animal Ressources



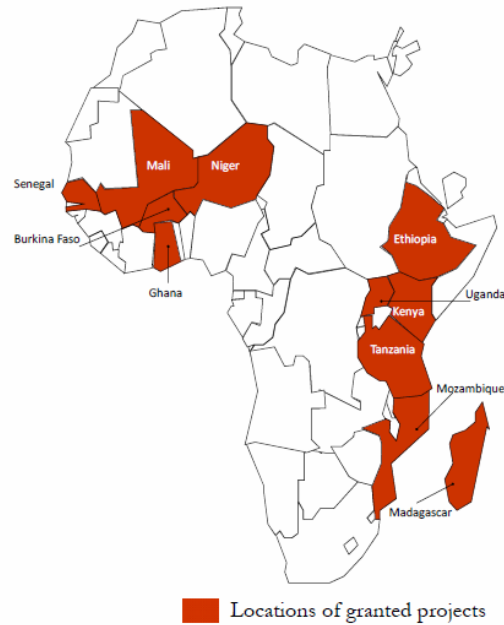
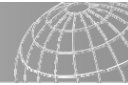
Role of biofuels in the climate change context

- Leibnitz Centre for Agricultural Landscape Research (ZALF)
Strategies to use biofuels value chain potential in Sub-Saharan Africa to respond to Global Change – Enhancing low productivity farming and linking to SMEs
 - Partner institutions: Institute for Environmental Economics and World trade (IUW), University of Hannover; Wuppertal Institute for Climate Environment and Energy (WI), ICRAF, IFPRI
 - Collaborating institutions: ASARECA, Sokoine University of Agriculture, University of Dar es Salaam, Tanzania



Pictures by ZALF

Research Locations



Conclusion

- Results of:
 - 50 research projects on SPS themes
 - 9 climate change research projects could be further evaluated
- BEAF represents the German Federal Ministry for Economic Cooperation and Development (BMZ) at EIARD and CGIAR-meetings
 - BEAF advises ministry, is flexible in responding to research needs



Thank You!

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