



Factsheet

MOOC “Powering Agriculture – Sustainable Energy for Food”

How can we produce more food with less energy, make energy use more efficient, and upscale clean energy technologies in food value chains? Almost 1,400 people participated in the MOOC (Massive Open Online Course) “Powering Agriculture – Sustainable Energy for Food” to discuss and find answers to those questions. Over eight weeks in spring 2016 they were introduced to the Energy-Agriculture Nexus and learned about the sustainable use of energy throughout all stages of agricultural value chains.

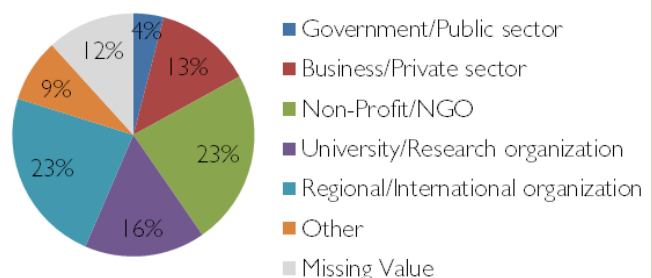
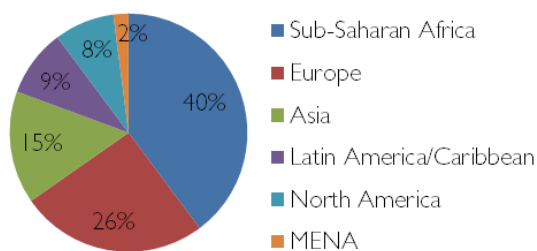
The MOOC was offered by the global initiative ‘Powering Agriculture: An Energy Grand Challenge for Development (PAEGC)’ and the TH Köln – University of Applied Sciences. Further contributing organizations were the Food and Agriculture Organization of the United Nations (FAO), Tetra Tech, the World Bank, as well as the Center for Development Research (ZEF) of the University of Bonn.

Results of the MOOC

With the large participant turnout, the lively discussions on the MOOC platform and thousands of comments the MOOC achieved its main goals: creating awareness of the importance of the Energy-Agriculture Nexus, and providing knowledge on technological solutions and business models for the use of clean energy in agricultural value chains.

Quick facts

- › **1354 participants** mostly from Sub-Saharan Africa (40%), but also from Europe (26%), Asia (15%), Latin America & the Caribbean (9%), North America (8%), MENA (2%)
- › **2/3 male** and **1/3 female** participants
- › Majority **aged 35-44** (47%), 20% aged 45-55, 15% between 25-34
- › **Working** in international organizations (23%), NGOs (23%), research (16%), private sector (13%), and governments (4%)
- › **High activity rate** with 356 Assignment Badges, 394 Community Badges, 2707 Week Badges and 298 Final Exam Badges
- › **18% earned the final MOOC certificate** – activity rates above-average, compared to reference values of Harvard research (9%)



Numbers based on a participant survey with 570 responses.

MOOC Contents

The MOOC introduced participants to challenges of and solutions for sustainable energy use in agricultural value chains. The first half of the curriculum focused on clean energy technologies while the second part highlighted economic and political aspects of projects at the interface of energy and agriculture.

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| Introduction | Week 1 | Introduction to the Energy-Agriculture Nexus |
| Renewable Energy Technologies and Energy Efficiency in Agricultural Value Chains | Week 2 | Renewable Energy Resources and Technology Overview |
| | Week 3 | Bioenergy for Agricultural Value Chains |
| | Week 4 | Energy efficiency in Agriculture |
| Economics of the Energy-Agriculture Nexus | Week 5 | Energy and Agriculture on the Macro Level |
| | Week 6 | Energy and Agriculture on the Micro Level |
| | Week 7 | Business Models for Energy and Agriculture Projects |
| Summary | Week 8 | Summary |

To receive the course certificate, issued by the *PAEGC initiative* and *TH Köln – University of Applied Sciences*, participants had to continuously contribute to the course by earning certain “badges” for weekly quizzes, community activities, assignments and a final quiz. The most work intensive but also most interactive part was the assignments: the participants had to work in teams to elaborate a case study of a solar-powered irrigation system for a location of their choice. The second assignment asked them to develop a business model for a clean energy solution for agricultural use. The expert tutors were impressed by the submissions’ quality and range of approaches. Additional peer review further catalyzed discussions on different clean energy solutions and their applicability in different contexts. This didactical method, in addition to videos, offline reading materials and quizzes, created an active online community.

Links to MOOC Platform & Material

The platform will stay accessible for the public; all material can also be found on the Powering Agriculture Wiki Portal on Energypedia. More information on the MOOC evaluation as well as methodological lessons learnt and experiences are available on request.

About

Powering Agriculture – An Energy Grand Challenge for Development (PAEGC)

PAEGC seeks to identify and support new and sustainable approaches to accelerate the development and deployment of clean energy solutions for increasing agriculture productivity and/or value in developing countries. The *United States Agency for International Development (USAID)*, the *Swedish International Development Cooperation Agency (Sida)*, the *German Federal Ministry for Economic Cooperation and Development (BMZ)*, *Duke Energy*, and the *Overseas Private Investment Corporation (OPIC)* have combined resources to fund Powering Agriculture. The *Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH* supports the initiative on behalf of BMZ.

TH Köln – University of Applied Sciences

TH Köln – University of Applied Sciences sees itself as University of Technology, Arts, and Sciences. With its disciplinary and cultural diversity and openness, TH Köln’s activities are aimed on cultural and technological breakthroughs of high societal relevance; TH Köln contributes substantially to resolving social challenges.

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