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"Solidarity in a competing world — fair use of resources"

How Climate-Smart Are the GIZ Supported Soil Protection and Rehabilitation Technologies in Benin, Burkina Faso, Ethiopia, India and Kenya?

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Abstract

Agriculture is a significant cause of climate change, directly contributing an approximate 14 % of anthropogenic greenhouse gas (GHG) emissions, and indirectly another 17 % through land use change (mainly deforestation). Although climate smart agriculture aims at improving food security, adaptation and mitigation, it does not imply that every recommended practice should necessarily be a 'triple win'. Especially in developing countries, mitigation should be a co-benefit, while food security and adaptation are main priorities. Thus, climate-smartness underlines the importance of potential trade-offs between agricultural production and environmental impacts. Integrated ex-ante impact assessment can help policy and development decision makers in targeting and upscaling interventions and investments. This study presents results from a rapid ex-ante assessment of the climate-smartness of the technologies supported under the BMZ-GIZ programme on 'Soil Protection and Rehabilitation for Food Security' in Benin, Burkina Faso, Ethiopia, India and Kenya, which is part of Germany's special initiative 'One World – No Hunger'. In all countries, participatory stakeholder workshops identified four to six distinct farming systems that differed in terms of intensification, production orientation, commercialisation, agro-ecological potential and resource endowment. Stakeholders also shortlisted the most relevant soil protection and rehabilitation technologies promoted in the target sites, and estimated impacts on crop and livestock productivity. Subsequently, household interviews were conducted in representative farms of the identified farming system types. The data collected was used to assess baseline performance and tradeoffs, as well as changes in response to the soil technology scenarios in three indicators of climate-smartness: productivity (kcal ha^{-1} yr^{-1}), GHG emissions (CO_2-eq/ha/yr), and nitrogen balance (kg N ha^{-1} yr^{-1}). Recommendations resulting from this study will inform soil and climate policy development in each country, as well as BMZ/GIZ planning processes aiming to align the scope of the soil programme with goals of climate smart agriculture.

Keywords: *Ex-ante* impact assessment, farming systems research, trade-offs

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