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for managing natural resources and a better life for all”

## Transdisciplinary knowledge transfer for accelerated sustainable transformation of agri-food systems

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### Abstract

Agricultural production and productivity in African communities are constrained by natural factors such as climate variability and change. Also limiting the agricultural sector are other factors such as policy and governance, economy and adoption of technologies. Nature-based solutions and agroecological concepts offer a holistic approach to sustainable agriculture, addressing environmental, social, and economic challenges while ensuring food security and resilience in the face of climate change. However, the implementation and acceptance of promising, sometimes paradigm-changing concepts is often a very slow process. The DAAD Agriculture Alumni Training Network with an overall theme of “Pathways for Sustainable Agro-Ecosystems Transformation in Africa” organised a travelling workshop in Ethiopia with a thematic focus on ‘Nature-based Solutions and Agro-ecological Concepts’. The aim was to explore and analyse current practices in the agricultural sector and what this holds for the future of sustainable agricultural transformations from the transdisciplinary perspectives of the various stakeholders. Examining the workshop activities, presentations, and field visits the adoption of these approaches was identified to be existent in the livestock, crop and socio-economics sectors such as organic farming, biogas production, and agroforestry amongst others. The multifunctional landscapes concept of trees for fertility, fodder and habitat; crops for diversification and organic matter including underutilised species; erosion control and rehabilitation of degraded landscapes; and the crop-livestock integration provides a comprehensive understanding of the socio-economic relevance and implications of these concepts in the agricultural sector. This also offers the opportunity for synergies and collaborations among various stakeholders, including the application of traditional knowledge. While these concepts have the potential to address the aforementioned challenges, promote sustainable development, and enhance livelihoods, the associated trade-offs in the scalability, the required knowledge base and transfer, implications and viability of these concepts in the context of sustainability still need to be addressed. Collaborative, transdisciplinary efforts among governments, the private sector, scientists, communities and farmers can design more effective policies and interventions that support nature-based concepts in contributing to Ethiopia’s more resilient, equitable, and prosperous agricultural sector. Such transdisciplinary concepts will likely accelerate the process of transformation and thus ultimately benefit both communities and the environment.

**Keywords:** Nature-based solutions, systems integration, transdisciplinary approach