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“Filling gaps and removing traps
for sustainable resource management”

Sustainable Food System and Job Creation under Water Scarcity

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Abstract

Agri-food systems in the DryArc region (between Southern Europe, North Africa, Sub-Saharan Africa and China) face a complex combination of challenges including water scarcity, rainfall variability, increased temperatures, land degradation, desertification, high population growth and migration, widespread poverty, malnutrition and unemployment. This region is expected to be among those worst affected by climate change, where reduced agricultural productivity, increased poverty, higher dependence on food imports, and increased competition for scarce natural resources will ultimately threaten the viability of agriculture and rural livelihoods. These constraints also present opportunities to transform agri-food systems across the DryArc and scaled in the frame of the diverse range of the region's agro-ecosystems: rainfed, irrigated, agro-pastoral and desert farming. Synergies across these agro-ecosystems can be leveraged among SDGs related to nutrition security, Natural Resource Management (including soils and water) and rural development, provided the potential of the agro-biodiversity is fully utilised and properly managed. This agro-ecological transformation of fields, farms, landscape, value chains and policies will be illustrated in the cereal-based agri-food systems of the DryArc region, showing the key role that food legumes, forages, livestock and trees can play in long-term sustainable use of water and soils. The implications for water, land and labour productivity under climate change and its effects on livelihoods of the people across this region is a critical part of this discussion, informing the future direction of research for development in the context of the CGIAR's DryArc initiative.

Keywords: Agro-biodiversity, cereals, food security, healthy diets, pulses, water productivity