



**JOSÉ EDUARDO DOS SANTOS UNIVERSITY  
FACULTY OF AGRICULTURAL SCIENCES**

**Doctorate in Agriculture, Food Security and Sustainable Land Management**

**Thematic Areas: Angola**

<b>Agriculture and Food Security</b>	<b>Agriculture Engineering</b>	<b>Climate and Environmental Sciences</b>	<b>Food Conservation &amp; transformation</b>	<b>Food Value Chain and Marketing</b>	<b>National Strategic Documents Reviewed</b>
Farming systems in climate changing environment	Low cost irrigation systems in the 21st century	Biofertilizers : a gain change in the 21st century	Infrastructure for post-harvest conservation and reduction of agricultural losses	Integration of agricultural markets and access to urban markets	Angola National Biodiversity Plan 2019-2025
Improve the viability of commercial farms and competitiveness in grain production in regions with best soils and climate conditions	Climate smart technologies for land management and adaptation to climate change for food security	Methods for reduction and adaptation to the impacts of climate change	Strengthening local food processing systems	Promote export of agricultural products with added value	National Strategy for Food and Nutrition Security (ENSAN II) 2025-2034, focusing on promoting family farming and diversification.
Quality standards, pest control, soil productivity	Mechanisation and modernisation of agricultural	Protection and restoration of ecosystems and	Promotion of nutritional food security through	Support value chains of sustainable and organic local products	National Development Plan 2023–2027, promoting production growth and reducing agricultural imports.



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and Seed improvements	production systems	sustainable use of biodiversity	dietary diversification		
Strengthen family farming and diversify essential crops	Climate-Resilient Agriculture Technologies for Rural Areas	Mechanisms to combat desertification and soil degradation	Processing and marketing of Agricultural food products	Agri-food marketing for rural youth and women	Presidential Decree No. 47/25 — National Strategy for Food and Nutrition Security (ENSAN II) 2025-2034 (FAOLEX)
	Infrastructure for sustainable irrigation and access to water for agriculture	Monitoring of climate impacts and environmental variability		Information systems on prices of agriculture products and domestic/international markets	

**Thematic Areas: Botswana**

<b>Agriculture and Food Security</b>	<b>Agriculture Engineering</b>	<b>Climate and Environmental Sciences</b>	<b>Food Conservation &amp; transformation</b>	<b>Food Value Chain and Marketing</b>
Food Security and Sovereignty - (Food Production)	Food storage and handling (HVAC)	Drought tolerant/ climate resilient crop varieties		
Food processing, safety and management	Automation Engineering (Irrigation, Tractor mgt)	Irrigation and water efficiency		



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Farming Business Development and Management	Off Grid Energy Systms (Solar powered solutions(installation, repair, mainatance), biogas, etc)- small hoder farmers	Smart and regenerative Agriculture (climate smart, mulching, ripping, biofertilisers		
Agriculture value chain Development	Precision Agriculture (Drones, EO, etc)	Waste Management (manure, crop residue, etc)		
Inclusivity and Market Access	AI driven GPS farming tools			

**Thematic Areas: Namibia**

<b>Agriculture and Food Security</b>	<b>Agriculture Engineering</b>	<b>Climate and Environmental Sciences</b>	<b>Food Conservation &amp; transformation</b>	<b>Food Value Chain and Marketing</b>
Climate resilient production systems (Improved crop varieties adapted to drought, mahangu, sorghum, cowpeas)	Digital & Precision Agriculture Technologies. Early warning systems for farmers. Sensor irrigation	Soil health and ecosystem managemet (soil enhancement and erosion control, rehabilitation of degraded lands, integration of indeginous and local knowledge)	Post-harvest loss reduction	Organised, aggregate Market access for smallholders



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Improve commercial farm viability and grain competitiveness	Climate-smart mechanization and land tech	Sustainable rangeland and livestock Management (grazing plan development, fodder production - lucerne, buffalo grass, bush to feed, supplementary feeding for livestock during drought years,	Food processing and agro-industry	Agribusiness development and trade
Quality standards, pest control, soil productivity, seed improvements	Farm mechanisation and appropriate technology (mechanisation suitable for small scale farmers that are affordable ie planters, tailor-made to specifics)	Drought resilience and ecosystem services	Nutrition-focused transformation	Value chain integration and exports
Livestock productivity enhancement	Design of climate-resilient kraals, handling facilities, and feedlots. Water point design to reduce rangeland degradation Infrastructure for animal health and biosecurity.	Environmental governance and policy climate policy analysis and implementation support	Horticulture value addition	Producer organizations and linkages
Water security for Agriculture (rainwater harvesting and small scale irrigation, borehole	Post-Harvest & Agro-Processing Engineering, Grain handling, storage, and drying technologies.	Socio Environmental systems and livelihoods - Climate impacts on livelihoods, gender	Waste-to-value innovations	Market access and food systems transformation through organised



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<p>rehabilitation and water infrastructure, efficient water technologies)</p>	<p>Cold chain infrastructure for horticulture and livestock products. Small-scale agro-processing equipment for value addition. Reduction of post-harvest losses through improved storage systems</p>	<p>youth, women and marginalised societies vulnerability studies</p>		<p>farming, market readiness</p>
<p>Innovative water treatment and desalination technologies for borehole waters in vulnerable communities</p>	<p>Biochar production and applications for sustainable soil management and climate mitigation- for soil fertility improvement (increases nutrient retention, water holding capacity, beneficial for microbial activity), carbon sequestration, agricultural or forestry waste in a useful products.</p>	<p>Determine whether the country is achieving its Land Degradation Neutrality (LDN) targets, as defined by UNCCD, aligning with internationally recognized LDN indicators while incorporating national ecological and socio-economic contexts, developing the monitoring plan in land cover changes types, such as land productivity, soil health, rangeland conditions and grazing pressure, water</p>	<p>Green Economy for Sustainable Development- enhance economic growth and social wellbeing while minimizing environmental impact.</p>	<p>Green Value Chain for Farmers Farm Producers Organization, including the development of the Green Value Chain enterprises.</p>



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		resources and hydrological stability, rangeland restoration effectiveness		
Sustainable fodder production and grazing management strategies focusing on climate-smart and resource-efficient approaches for fodder production, including the cultivation of drought-tolerant forage, and implementation of rotational grazing systems		Identification and mapping of degraded areas		
Sustainable Land Management (SLM) and Sustainable Forest Management practices including riparian forests, agroforestry, water conservation, bush control etc)				



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**Thematic Areas: Zambia**

<b>Agriculture and Food Security</b>	<b>Agriculture Engineering</b>	<b>Climate and Environmental Sciences</b>	<b>Food Conservation &amp; transformation</b>	<b>Food Value Chain and Marketing</b>	<b>Documents Reviewed</b>
Enhanced productivity and production through improved crop varieties, and livestock, and fish breeds	Farm power and mechanisation for improved productivity, food security, and competitiveness.	Environment and climate changemainstreaming into the agriculture sector	Operationalise fish breeding and freezing centers	Private sector growth by offering investment incentives, and relaxed restrictions on agro exports	1. 8NDP, 2. Second National Agricultural Policy 2016, 3. National agricultural mechanisation strategy 2024-2028, 4. Climate Smart Agriculture Investment Plan, 5. Zambia Development Agency Agriculture sector profile 2024, and 6. Zambia national food systems pathways.
Devolution of agriculture and verterinary services to improve efficiency in service provision	Farm block concepts to promote specialised agro-production and processing zone	Gender, HIV and AIDS, and governance mainstreaming into agriculture	Building of Sustainable Food Chains	Improved access to finance	



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<p>Pathways to Zero hunger by 2030: Access to safe and nutritious food; Healthy and sustainable consumption; Nature positive food production; Equity in the food system and Building resilience to vulnerabilities, shocks and stresses</p>	<p>Enhanced irrigation strategies to improve productivity and promote climate resilience in the Agriculture sector</p>	<p>Local and national benefits of climate smart agriculture</p>	<p>Strengthening local food systems through conservation of indigenous crop varieties</p>	<p>Building local, diverse, sustainable and commercially viable food value chains</p>	
<p>Modernization of the Agriculture practices through introduction of modern techniques</p>	<p>Strengthening Human Capacity in Agriculture Engineering through support to High Institutions of Learning</p>	<p>Water resource management and resilience in production systems</p>			



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**Thematic Areas: South Africa**

<b>Agriculture and Food Security</b>	<b>Agriculture Engineering</b>	<b>Climate and Environmental Sciences</b>	<b>Food Conversion and transformation</b>	<b>Food value Chain and Marketing</b>
Advanced tools and methodologies for assessing and categorizing agricultural land	Advances agro-processing equipment and use of robotics	Climate modelling and suitability of major crops under changing climate	Exploring advanced biotechnology processes for bioprocessing of indigenous plants	Research in food waste and loss reduction in agricultural value chain
Breeding of plant cultivars under changing climate	Waste-to-bioenergy research	Advancements of livestock breeding for climate change mitigation and adaptation	Advances in food safety	Research in reduction of carbon footprint of agricultural products
Crop production modelling using AI and ML tools	Research on Precision agriculture on reducing inputs and energy	Modelling of greenhouse gas fluxes from the agriculture and land-based systems	Advanced research on shelf-life extension of agricultural products	Use of AI and IoT tools for agricultural products logistics
Livestock production modelling using AI and ML tools	Reduction in post-harvest losses through environmental control	Genetic variance of ruminants for reduced	Advanced research on agricultural biosecurity	Advanced research on food value chain



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		greenhouse gas emissions		
Quantifying the genetic resilience and improvement of indigenous livestock breeds	Research in water-efficient irrigation equipment	Advances in grassland research		
Soil Health & system thinking				
Digital soil mapping & Pedometrics				
Emerging pollutants & land remediation				
Soil microbiomes & functional biodiversity				