



Annex 1: Research themes and study area

Research and academic programmes will draw specifically from KEFRI's research themes, strategic objectives and focal study areas as outlined in the current KEFRI Strategic Plan 2018-2022.

Specific research study areas/focus

No.	Thematic area	Strategic objectives	Research/Concept/focus
1	Forest Productivity and Improvement (FPI)	Generate technologies for establishing and managing plantation forests and trees on farm	<ul style="list-style-type: none"> Studies on tree physiology in tree, water and soil interaction Studies on reviewing and developing silvicultural management procedures for key indigenous and exotic tree species
		Enhance health of trees and forests through studies on entomology, pathology and associated environmental factors	<ul style="list-style-type: none"> Studies on developing fire prediction models and control procedures Studies on evaluating the efficiency of aerial seeding as a forest rehabilitation technology Studies on monitor hazards, vulnerability and level of exposure of plantations and trees on farm to diverse biotic and abiotic agents Studies on monitoring the introduction and spread of alien invasive species and parasites and develop management options Studies on quantifying impact of pests and diseases on forest health
		Undertake forest resource assessment	<ul style="list-style-type: none"> Studies on forest mensuration and modeling studies Studies on forest resource inventory and monitoring through remote sensing and GIS application
		Enhance production of superior germplasm for priority tree species for different agro-ecological zones	<ul style="list-style-type: none"> Studies on use of molecular markers for finger printing priority tree species Studies on developing tissue culture protocols for mass propagation of selected species
2	Forest Biodiversity and Environment Management (FBEM)	Develop technologies for rehabilitation/restoration of forests and allied natural resources	<ul style="list-style-type: none"> Studies on ecological influences of various forest types to secure a broad range of goods and environmental services. Studies on quantify impact of animal damage on forest ecosystems in both high potential areas and ASALS
		Develop climate change adaptation technologies	<ul style="list-style-type: none"> Studies on development of scenario models for different species in regard to climate change Studies on development of methods and procedures for monitoring and estimating carbon stocks (MRVS) for various forest types Studies on development of technologies for mitigating climate change shock and impacts



		Develop technologies for conservation of water catchments and wet lands ecosystems management	<ul style="list-style-type: none"> • Studies on forest soils and roles of trees in nutrient cycling • Studies on long-term hydrological impacts on riparian, wet lands and coastal ecosystems • Studies on hydrological processes and watershed management
		Biodiversity monitoring and management	<ul style="list-style-type: none"> • Studies on assessing extinction threats of endangered tree species
		Develop technologies for management of alien invasive species	<ul style="list-style-type: none"> • Studies on management of potential invasive species in forest ecosystems
3	Forest Products Development (FPD)	Develop technologies for efficient processing and utilisation of wood and non-wood forest products	<ul style="list-style-type: none"> • Studies on enhancing efficiency in production, harvesting and utilisation of non-timber forest products • Studies on improving efficiency in production, harvesting, processing and utilisation of timber • Studies on improving efficiency in biomass energy processing and utilisation • Studies on enhancing bio-prospecting and use of indigenous knowledge on natural products
4	Socio-economics, Policy and Governance (SPG)	Formulate policies for improved livelihoods and sustainable forest management	<ul style="list-style-type: none"> • Studies on evaluating opportunities for sustainable forest recreation and ecotourism • Studies on evaluating potential of urban forestry for safe, resilient and sustainable cities • Studies on forest history, indigenous forest communities and indigenous knowledge in management of forest resources • Studies on evaluating viable concessions, leaseholds and permitting models for public and community forestlands • Studies on the influence of forest land tenure and property rights on forest development • Studies on evaluating the potential contribution of the forest sector to the country's green economy
5	Forestry Research Support Services (FRSS)	Disseminate forestry research technologies and enhance research capacity	<ul style="list-style-type: none"> • Studies on enhancing forest information management and dissemination • Studies on building capacity of stakeholders • Studies on enhancing laboratory management and operations • Studies on enhancing knowledge management • Studies on strengthening biometrics and GIS • Studies on enhancing application of Information Communication Technology