

List of Completed projects

S. No.	Title of the Project	Principal Investigator	Duration of the Project	Funding Agency	Project Status	Project objectives	Research findings
1	Developing seed testing and seed storage protocols of selected forestry species from diverse forest types. AICRP10	Dr. N. K. Bohra, Scientist-D	2020-2025	All India research Coordinated Project (CAMP A)	Completed	Component 1: Fruit/Seed maturity and seed collection, processing and handling (i) To develop maturity indices for seed collection (ii) To identify the optimal developmental stage for seed collection (iii) Standardization of seed extraction, processing and handling Component 2: Investigating Seed Germination behavior of forestry species from various forest types (i) To assess germination behavior of seeds (ii) Devising pre-sowing treatments for dormancy, if any (iii) Standardizing techniques for seed germination of different forestry species (iv) Study of seed myco flora/pests and their management Component 3: Seed Storage physiology (i) To characterize the storage physiology of	Extensive survey and studies for developing seed maturity index was carried out Seed pre-treatment studies for maximum effective germination. Was carried out

					seeds. (ii) Investigating seed storage behavior and viability of selected forestry species for conservation of germplasm (iii) To estimate the parameters for prediction of viability under different seed storage conditions. (iv) To develop the protocol for seed storage for retention of viability. Component 4: Nursery techniques for production of quality seedlings (i) To develop nursery techniques for <i>Anogeissus latifolia</i>, <i>Boswellia serrata</i>, <i>Capparis decidua</i>, <i>Salvadora persica</i>, <i>Santalum album</i>, (ii) To standardize seedling quality parameters for production of quality seedlings Component 5: Extension and Capacity building ((i) Preparation and Publication of Technical manuals/booklets on seed storage and propagation of different forestry species, for training programmes (ii) Conducting training programmes in	In all the seed viability test occurs at room temperature as well as at 10 degree, -4 degree and -10 degree . Nursery technique using different container size and potting mixture was studied and protocol for quality seedlings were developed. Training was given to stakeholders in Rajasthan and Gujarat
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						seed and nursery techniques, for capacity building of various stakeholders.	
2	Conservation, Improvement, Management and Promotion of Sandalwood (<i>Santalum album</i> Linn.) Cultivation in India.	Dr. N. K. Bohra, Scientist-D	2020-2025	All India research Coordinated Project (CAMP A)	Completed	Development of Sandalwood based agroforestry system and its promotion in selected agro climatic zones of India	Agroforestry model with sandal using different horticulture plant as hosts were developed at Linch, Mehsana in Gujarat and Karamdiya nursery at Pratapgarh, Rajasthan were developed.
3	Genetic improvement of Eucalyptus	Dr. N. K. Bohra, Scientist-D	2020-2025	All India research Coordinated Project (CAMP A)	Completed	Selection of superior Eucalyptus clones across different regions (All India MLT)	Clonal trial using clones provided by IFGTB, Coimbatore were established at Linch, Mehsana, Mahua, Jungarh in Gujarat and at Mohangarh, Jaipur, Rajasthan. Data were taken periodical for clonal suitability.
4	Testing and deployment of clones and seed sources of <i>Casuarina</i> for different planting environments and end-use applications	Dr. N. K. Bohra, Scientist-D	2020-2025	CAMP A	Completed	To evaluate selected accessions for suitability to coastal, inland, waterlogged, salt-affected areas and other problem environments.	Clonal trial using clones provided by IFGTB, Coimbatore were established at Mahua, Gujarat and also maintained Rajkot, Gujarat and VMG trials. Data were taken periodical for clonal suitability.
5	Valuation of forests for GDP, Green GDP and payment of Ecosystem goods	Smt. Sangeeta Tripathi, CTO,	2020-2025	All India research Coordinated	Completed	(i) To develop methodologies for forest valuation, both direct and indirect	Conducted HH Survey (1600 Households) in Churu, Sikar, Nagaur,

	& Services			Project (AICRP -13; CAMP A)	(ii) To determine the contribution of forests to the GDP of India (iii) To determine the value of ecosystem goods and services per unit area for different forest types (iv) To determine the replacement cost of forests when diverted for non-forestry purposes	Jhalawar, Udaipur, Bundi, Baran, Rajsamand & Durgapur districts (Rajasthan) and Dahod, Banaskantha, Navsari, Surat and Amreli districts (Gujarat). Recorded data on Socio-economic status, wood/timber use, sources, collection & selling of fuelwood, NTFPs and fodder in prescribed format. Ecotourism Services: Conducted Ecotourism study at Machia Biological Safari Park, Jodhpur for 540 visitors. Collected Data in Kobo collect software . Carbon study: Conducted carbon studies in Alwar district of Rajasthan. Recorded total carbon in (tons/ha) (i) VDF- 39.73 (ii) MDF – 30.40 (iii) OF- 14.17. Pollination services: Sample plots were laid out in Alwar district to record pollination services.
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							50 pollinators were observed in BalaKilla, Andheri KaJungal and Love Kush Vatika of Alwar.
6	Bioprospecting for industrial utilization of lesser known forest plants	Smt. Sangeeta Tripathi, CTO,	2020-2025	All India research Coordinated Project (AICRP -16; CAMP A)	Completed	1. Survey, evaluation and prioritization of the targetedLKFPs 2. Systematic chemical screening of the populations of the prioritized LKFPs and identification of their chemically superior genotypes. 3. Identification of industrially viable genotypes among the chemically superior genotypes. 4. Standardization of protocols for downstream processing of industrially viable genotypes. 5. Development of technology for production of value added marketable products from qualitatively qualified commercial products of the industrially viable genotypes. 6. Extension of the project outcome to various stakeholders for generation of awareness towards plantations of	The study documented and analysed the distribution, natural availability, ethnobotanical significance, economic importance, and scientific status of seven priority NTFP species—<i>Balanitesaegyptiaca</i>, <i>Citrulluscolocynthis</i>, <i>Sterculiaurens</i>, <i>Xanthiumstrumarium</i>, <i>Moringaoleifera</i>, <i>Sapindustrifoliatum</i>, and <i>Mimusopselengi</i>—to support their prioritization for research and conservation. Extensive surveys conducted in Rajasthan and Gujarat led to the identification of chemically superior genotypes of <i>Balanitesaegyptiaca</i>, <i>Citrulluscolocynthis</i>, and <i>Xanthiumstrumarium</i>. Chemical screening of 57

						promising LKFPs, commercial applications and improving livelihoods.	accessions of <i>B. aegyptiaca</i> (15 populations) identified superior genotypes from Alwar, Pali, Tonk, and Jodhpur. Similarly, superior genotypes of <i>C. colocynthis</i> were identified from Bikaner, Jodhpur, Surat, and Panchmahal, while those of <i>X. strumarium</i> were recorded from Sirohi, Ajmer, Jodhpur, Surat, and Panchmahal. GC–MS analysis of <i>B. aegyptiaca</i> seed oil revealed a predominance of unsaturated fatty acids, with linoleic acid methyl ester (55.89%) as the major constituent, followed by oleic acid methyl ester (19.97%), palmitic acid methyl ester (14.65%), and stearic acid methyl ester (8.68%). These findings indicate the potential of <i>B. aegyptiaca</i> seed oil for nutritional, pharmaceutical, and industrial applications. Value addition
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						studies resulted in the development of two herbal soap formulations (Soap-A and Soap-B) using <i>B. aegyptiaca</i> seed oil. The formulations were evaluated for Total Fatty Matter (TFM), total alkali, free caustic alkali, moisture content, pH, and other quality parameters, demonstrating their suitability as safe and effective herbal cleansing products. Seeds of chemically superior populations of <i>B. aegyptiaca</i>, <i>C. colocynthis</i>, and <i>X. strumarium</i> were successfully established in the AFRI Model Nursery, Jodhpur, to support future propagation and conservation efforts. Capacity-building programmes conducted at the Forest Training Institute, Jodhpur, and Rajasthan Police Training Centre, Jodhpur, trained approximately
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							140 forest personnel on nursery techniques for chemically superior populations, applications of <i>S. urens</i> gum, and herbal soap preparation. The training generated significant interest in value-added NTFP products and highlighted their potential for promoting sustainable livelihoods and community-based enterprises.
7	Sustainable management of NTFPs through conservation and value addition.	Smt. Sangeeta Tripathi, CTO,	2020-2025	All India research Coordinated Project (AICRP -29; CAMP A)	Completed	1.To identify superior germplasm of NTFPs yielding species. 2.To standardize and domestication of package of practices. 3.To standardize sustainable harvesting techniques of NTFPs. 4. To document Indigenous Traditional Knowledge	The study documented the ecological distribution, morphological variability, soil-plant relationships, nutritional composition, and phytochemical diversity of <i>Miliusatomento sa</i>, <i>Averrhoa carambola</i>, <i>Acacia concinna</i>, and <i>Eclipta alba</i> in Rajasthan and Gujarat. Region-specific nursery protocols identified Soil:Sand:Nee m leaf compost (3:3:4) as the optimal potting medium for all four species. Species-specific seed

						(ITKs) on medicinal formulations used for treatment of different chronic diseases in different regions. 5.To standardize post harvesting process andvalue addition techniques of NTFP's for providing sustainable livelihood. 6. To develop value chain. 7.Capacity building of different stake holders.	treatments enhanced germination, while <i>Eclipta alba</i> required no pre-treatment. Only <i>Acacia concinna</i> needed chemical pest management; neem compost effectively promoted growth, nutrient availability and natural disease suppression in the remaining species. Reconnaissance surveys in Rajasthan and Gujarat identified unsustainable NTFP harvesting practices threatening key species. Improved techniques reduced spoilage by 50% in <i>Averrhoecaracarambola</i> and 36.5% in <i>Manilkarahexandra</i>, increased yields by 25–75.45%, extended <i>Foeniculum vulgare</i> shelf life from 7 to 13 months, and raised yields by 33%, demonstrating significant ecological and economic benefits. Ethnobotanical
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						surveys documented traditional use of 36 medicinal plant species by tribal communities in Rajasthan and Gujarat. Key species included <i>Terminalia arjuna</i>, <i>Moringaoleifera</i>, <i>Gymnemasylvestre</i>, <i>Syzygiumcumini</i>, <i>Adhatodavasic</i>, <i>Boswelliaserrata</i>, <i>Tinosporacordifolia</i>, <i>Withaniasomnifera</i>, and <i>Zingiberofficinale</i> for managing cardiovascular diseases, diabetes, arthritis and bronchial disorders through sustainable indigenous healthcare practices. Traditional processing and value addition were documented for 10+ NTFP species, including <i>Averrhoa carambola</i>, <i>Butea monosperma</i>, <i>Phyllanthusacidus</i>, <i>Feronia limonia</i>, <i>Tamarindusindica</i>, <i>Manilkarahexandra</i>,
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							<i>Balanitesaegyptiaca</i> and <i>Terminalia bellirica</i>. Solar drying reduced drying time to 2 days and improved shelf life, while the optimal soap formulation (NaOH:coconut oil:water, 1:4:6) and diverse value-added products enhanced commercialization potential. Market surveys in Rajasthan and Gujarat revealed wide price variation among 15 medicinal species, including <i>Withaniasomnifera</i> (₹250–350/kg), <i>Chlorophytumborivilianum</i> (₹100–300/kg) and <i>Terminalia bellirica</i> (₹20–130/kg). <i>Azadirachtaindica</i> and <i>Cassia angustifolia</i> contained 6.11–34.17% foreign matter, emphasizing the need for standardized post-harvest handling, quality control, and market infrastructure.
8	Survey and selection of Candidate Plus Trees (CPT) and Identification of Seed Production	Smt. Sangeeta Tripathi, CTO,	2021-2025	State Forest Department, Rajasthan	Completed	(i) To conduct survey for identification of CPTs of <i>Madhucaindica</i> , <i>Manilkara hexandra</i>	Extensive field surveys were conducted across multiple forest divisions of Rajasthan

	Areas (SPA) and Broad Leaves Species of Rajasthan			(SFD-CAMP A)		<i>a. Butea monosperma, Boswelliaserrata, Feronia limonia, Anogeissus pendula</i> and <i>Anogeissus latifolia</i> in selected districts. (ii) Selection and marking of CPTs from identified population. (iii) Evaluation of existing Seed Production Areas.	during November 2021 to March 2026. A total of 915 CPTs of selected species viz. <i>Butea monosperma</i> (148), <i>Anogeissus pendula</i> (240), <i>A. latifolia</i> (130), <i>Boswelliaserrata</i> (64), <i>Madhuca indica</i> (192), <i>Manilkara hexandra</i> (69), <i>Feronia limonia</i> (72) were identified and marked in Japiur, Alwar, Pratapgarh, Banswada, Jhalawad, Sirohi, Udaipur, Kota and Bundi districts of Rajasthan. Geo-Coordinates and Passport Data were also recorded. SPA of selected species were also marked.
	Assessment and monitoring of Invasive Alien Plant Species in India and formulation of strategies for management of key Invasive Alien Plant Species in different regions of the country	Mrs. Seema Kumar, Scientist-E (2020-Sep 2022) Sh. Bharat veer Jayant, CTO.(Oct 2022-March 2025)	2020-2025	All India research Coordinated Project (AICRP -07; CAMP A)	Completed	i. To assess the spatial extent of selected IAPS using Remote sensing and GIS. ii. To assess the various ecological impacts of selected IAPS in the country. iii. To predict the	A comprehensive survey of <i>Prosopis juliflora</i>, <i>Lantana camara</i>, and other invasive alien plant species was completed across more than 45 districts of Rajasthan and Gujarat, generating a validated geo-referenced database from

						future spread of selected IAPS using Species Distribution Models. iv. To explore bio-prospecting and other utilization potential of selected IAPS. v. To develop cost effective methods for eradication and control of selected IAPS. To standardize restoration models for invaded areas with native species and develop a compendium on IAPS in collaboration with the SFDs	141 survey sites. Distribution patterns, occurrence, spread, associated vegetation, and ecological observations of invasive alien plant species were documented, providing a scientific baseline for mapping, monitoring, ecological assessment, and management planning. More than 350 soil samples were collected from <i>Prosopis juliflora</i> and <i>Lantana camara</i> habitats across Rajasthan and Gujarat for assessment of soil physico-chemical properties and their relationship with invasive species distribution. Vegetation studies using quadrat and point count methods recorded plant species diversity, natural regeneration status, and invasive species impact across surveyed areas, including
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							GPS-based documentation of new survey locations. A checklist of fauna associated with invasive plant habitats was prepared, documenting interactions between invasive species and different faunal groups, supporting biodiversity assessment and conservation planning. Insect diversity studies identified important biological control agents associated with <i>Prosopis juliflora</i> and <i>Lantana camara</i>. Two major seed bruchids, <i>Algarobius prosopis</i> and <i>Caryedon serratus</i> (Coleoptera: Chrysomelidae: Bruchinae), were recorded from <i>Prosopis juliflora</i> pods. A diverse insect fauna associated with invasive plants was documented, including 11 Coleoptera species, 9 Lepidoptera species, 3
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						grasshopper species, 2 termite species, 2 sap-sucking insects, 2 Diptera species, and 6 hymenopteran pollinators. The leaf defoliator <i>Streblotesiva</i> was recorded for the first time from Kachchh district, Gujarat. Biological control experiments were conducted by screening more than 20 tree species seeds to determine the host range of seed bruchids. <i>Tamarindus indica</i> and <i>Acacia concinna</i> seeds were found severely infested by <i>Caryedon gonagra</i>, and a host range checklist was prepared. Suitable native plant species were identified for restoration of invasive species-affected habitats based on field surveys and secondary information. The completed research outputs provide a scientific foundation for integrated invasive alien
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							plant management, biological control strategies, biodiversity conservation, and ecological restoration in Rajasthan and Gujarat.
		Sh. S. L. Meena, CTO	2020-2025		Completed		
	Conservation and Productivity Improvement of Red sanders (<i>Pterocarpussantalinus</i> L.f.);	Suryanarayana Murthy Midde	2020-2025	CAMP A	Concluded	1. To establish base populations of Red sanders with germplasm from natural populations. 2. To select plus trees of Red sanders and lay multilocational progeny trials. 3. To refine and develop silvicultural techniques for Red sanders. 4. To develop molecular resources and techniques for Red sanders.	The AICRP on <i>Red Sanders (Pterocarpussantalinus</i>L.f.) established a scientific foundation for the genetic improvement and conservation of the species through identification of superior germplasm, establishment of progeny trials, and development of breeding resources. Under Objective 2 (Component 3), ICFRE-AFRI, Jodhpur successfully established progeny trial at Pindwara (Sirohi), Rajasthan using progenies of selected plus trees. The trial expanded the evaluation of Red Sanders beyond its natural distribution into the semi-arid

							region, thereby providing an important platform for assessing progeny performance, survival, and early growth, adaptability and genotype $\times$ environment (G $\times$ E) interactions under Rajasthan conditions. The progeny trial will serve as a long-term genetic resource for selection of superior families, future breeding programmes, and production of genetically improved planting material for Red Sanders cultivation in suitable non-native regions.
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