PROJECTS INITIATED DURING THE YEAR 2008-2009
PLAN PROJECTS

Project 1: Anatomical approach to evaluate treatability of timbers. (IWST/WPU-XI 84/2008-2011)

Status: Under the project, phase contrast microscope was purchased and one technical Assistant on contract basis was appointed. Totally 9 species, were taken up for study. They are *Hevea brasiliensis, Melia composita, Greviellea robusta, Acacia auriculaeformis, Acacia mangium,Populus* spp, *Gmelina arboborea* and *two Eucalypt* spp. Of the 9 species wood samples were brought to moisture condition and specific gravity was determined for four species (100 samples each).

Project 2: Performance of Coatings on Modified Wood Surfaces. (IWST/WSP/XI 90/2008-2012)

Status: Reaction conditions of Acetylation and Benzoylation of wood has been standardized. The stands for natural weathering were fabricated.

Project 3: Studies on the permeability of selected imported timbers marketed in Karnataka. (IWST/WSP/XI 83/2008-2011)

Status: Five species of imported timbers namely *Xylia dolabriformis* (Pyinkado), *Instia biguga* (Merabau), *Dipterocarpus spp*. (Gurjan) and two *Shorea spp*. (Red meranti and Balau) were procured. Of these, 300 permeability samples (size: 22 x 22 x 22 mm) from two species were undergoing conditioning prior to measurement of flow rates. On the other hand, test stakes of (size: 19 x 19 x 450 mm) *Xylia dolabriformis* and *Shorea spp* were being exposed under field condition.

Project 4: Study on Morphology and Properties of Natural Fibre Filled Polypropylene Composites (NFPPC). (IWST/WSP-XI 77/2008-2011)

Status: Raw material *i.e*. Jute, Rubber wood powder, bamboo powder and the thermoplastic-Polypropylene and m-TMI procured for compounding both the material.
A Torque rheometer for studying the rheological properties of wood polymer composites has been procured and standardized.

Project 5: Synthesis of organometallic complex replacing arsenic component in CCA preservative by organic ligant (plant extractive) and evaluate as semi biopreservative. (IWST/CFP/XI-85/2008-2011)

Status: Procured leaf and bark of *Cleistanthus collinus* Roxb. *and Prosopis juliflora* DC. Optimized the extraction procedure to obtain maximum yield of plant extract with different solvents. Trials have been carried out for the reaction of $CuSO_4$ and CrO_3 with plant extract for further study as preservative.

Project 6: Studies on the insect pest problem of sandal under cultivation and their management (IWST/WBD/ XI/80/2008-2011)

Status: Three agroforestry models (sandal and mango; sandal, tamarind and Amla; Eucalyptus hybrid, *Dalbergia sissoo* and *Pterocarpus santalinus*) located in Bevanahalli, Mudennahalli and Gottipura (Karnataka) were selected for studying the pest and disease problems in sandalwood. The major pests collected were sap suckers followed by defoliators. At Jarakbande, sandal plantations grown along with *Acacia auriculiformis* had severe shoot borer problem by a Cerambycid pest. Sandal plants of pencil thickness, were found attacked leading to stunted growth and mortality of plants.

Project 7: Characterization of marine lignicolous fungi in traditional wooden craft (IWST/WBD (M)/XI/86 – 2008-2012)

Status: The major fishing village in Visakhapatnam city, the Pedajalaripeta, was surveyed for identification of fungal infested traditional wooden craft and wood infested with fungi were collected from a catamaran made of *Paraserianthes falcataria*. Mixed culture of fungi present in the wood carried out and based on morphological variations, they were separated and maintained as pure cultures. Wooden test coupons were treated to a gradient of CCA absorptions and are being tested for infestation of fungi to arrive at threshold loading of CCA required to prevent fungal infestation.

Project 8: Incidence and diversity of marine borers in mangrove habitats of northern Andhra Pradesh (IWST/WBD (M)/XI/89- 2008-2011)

Status: Surveyed the mangrove habitats in Srikakulam, Visakhapatnam, East Godavari and Krishna districts, collected infested plant material and assessed the damage caused to vegetation. Extracted various wood boring organisms, namely, *Sphaeroma terebrans, S. annandalei, S. a. travencorensis, Bactronophorus thoracites, Dicyathifer manni*, *Lyrodus pedicellatus, L. medilobatus, L. takanoshimensis, Teredo furcifera, T. parksi, T. bartschi, Nausitora dunlopei*, *Bankia carinata, B. campanellata, B. brevis, B. gouldi, B. gracilis* and *B. rochi* and enumerated their incidence.

Project 9: Studies on scale up of protocols for *in vitro* propagation, hardening, production of cloned plants and establishment of field trials of Sandalwood (*Santalum album* L) (IWST/TIP/XI 78/2008-2011)

Status: Established shoot initiation cultures from the ramates of the clones from germplasm bank. Multiplied old cultures of five clones of diverse origin. Initiated studies on rooting of *in vitro* shoots under *in vitro* and *ex vitro* conditions. Established fragile callus cultures of four clones. Multiplied the embryogenic callus for somatic embryo induction.

Project 10 : Variability studies in *Hardwickia binata* – a multipurpose tree species in Karnataka, Andhra Pradesh and Tamil Nadu (IWST/TIP/XI 79/2008-2013)

Status: Survey has been carried out in different parts of Karnataka to identify the populations of *Hardwickia binata*. Preliminary morphological observations have been recorded and core samples have been collected from different aged plantations to document the variability for tree traits.

Project 11: Ecological, economic and socio- cultural evaluation of a ficus based traditional agroforestry system in Mandya district of Karnataka (IWST/TIP/XI-82/2008-2011)

Status: Secondary data collection completed.50% of individual surveys covering 100 respondents and 8 village surveys completed. Litter traps under Ficus trees set up for ecological experiments. Crop yield measurements were conducted under various species of ficus.

Project 12: Studies on seed variability, propagation and ex-situ conservation of *Canarium strictum* Roxb. and *Hydnocarpus pentendra* (Buch. –Ham.) Oken - threatened medicinal trees (IWST/TIP/XI-81/2008-2011)

Status: Survey had been conducted in and around Agumbe, Koppa and Ponnampet for identification of population of *Canarium strictum* and *Hydnocarpus pentendra.* Germination studies revealed that both the species have seed dormancy. In *C. strictum* dormancy is coat imposed, while in *Hydnocarpus* it is physiological. Cracking of seed coat enhanced germination in *Canarium,* while in *Hydnocarpus* pretreatment with GA3 resulted in seed germination.

Project 13: Study on combustion characteristics and fuel properties of roots from selected agroforestry tree species (IWST/WE/XI-91/2008-June 2009)

Status: A detailed study on fuelwood properties (proximate and elemental analysis) of roots of selected agroforestry species i.e., *G. robusta, C. equisetifolia*, *E. hybrid* and *A. nilotica* was carried out. Study on combustion characteristic under oxidizing and inert atmosphere is under progress.

Project 14: Development of database on Red Sanders (*Pterocarpus santalinus* L). (IWST/ITCell/XI-87/2008-2010)

Status: Purchased the required equipments. Recruited Project Assistant. Model design of web site was prepared. Visited Tirumala hills and Sri Venkateshwara University, Tirupati for data collection.