

## Casuarina Improvement for Securing Rural Livelihoods

By Abel Nicodemus, Coordinator of [IUFRO Working Party 2.08.02](#)

Over two million hectares of *Casuarina* plantations protect human habitats and agricultural fields, help in reclaiming degraded sites and meet industrial raw material requirements for paper and plywood making and biomass-based energy generation. Cultivation and harvesting of *Casuarina* generate livelihood opportunities for farmers and agriculture-dependent labor force in rural areas.

### Fifth International Casuarina Workshop

Following four earlier successful international meetings in Canberra (1981), Cairo (1990), Da Nang (1996) and Haikou (2010) the Fifth International Casuarina Workshop was held in Mamallapuram, Chennai, India, between 3 and 7 February 2014 under the aegis of IUFRO Working Party 2.08.02, Improvement and Culture of Nitrogen-Fixing Trees. It was attended by 80 participants from Australia, Bangladesh, China, France, India, Mali, Philippines, Senegal, Thailand and USA. The meeting was generously hosted and sponsored by the Institute of Forest Genetics and Tree Breeding, Indian Council of Forestry Research and Education, Coimbatore 641 002, India.

Meeting website: <http://ifgtb.icfre.gov.in>

The objective of the Workshop was to bring together researchers and managers to update the knowledge on this important group of species so that the results are effectively used for improving livelihood opportunities in rural areas.

### Key Issues

The current status of *Casuarina* planting, utilization and research for improved products and services in the 10 countries represented in the workshop was shown. Strategies to meet the diverse end-use and environmental requirements were discussed.

The importance of assemblage, testing and conservation of *Casuarina* genetic resources both in its natural and planted habitats was emphasized to maintain a reservoir of variability which can cater to all products and services expected from *Casuarina* plantations.

The extent of genetic gain realized from the ongoing systematic breeding programs and its impact on securing rural livelihoods and industrial raw material were discussed. It was decided to put more effort into improving the accessibility and affordability of genetically improved planting material to smallholding farmers.



*Inauguration of the 5th International Casuarina Workshop. Photo by J. Soosairaj (by special arrangement)*

A major part of the meeting was devoted to discussing the need to utilize the nitrogen-fixing ability of *Casuarina* to meet the challenges of cultivating trees in salt-affected, moisture-stressed and nutrient-deficient sites. It calls for further research on host-microbe interactions and the molecular basis of biological nitrogen fixation.

### Recommendations

The participants drafted recommendations under four broad areas for follow-up action: accelerating breeding programs; improving cultivation techniques and pest management; molecular biological approaches to *Casuarina*-*Frankia* symbiosis and biological nitrogen fixation; applied research on wood quality and harvesting methods to meet industrial requirements are the major recommendations. The meeting also called for international cooperation in germplasm exchange to sustain the ongoing genetic improvement programs.

The workshop report and its recommendations will be posted on the website of the host organization and supporting institutions. Papers presented at the workshop will be peer-reviewed, edited and published as proceedings. The newsletter of the Working Party, *NFT News*, will be revived in electronic form and shall be available on the IUFRO website. Participants and members of the Working Party were encouraged to hold regular meetings in their respective countries to further implementation of the workshop recommendations.