

MINUTES OF THE XXII RAG MEETING
(28th – 29th September 2016)

ORGANIZED BY
FOREST RESEARCH INSTITUTE
DEHRADUN

**Proceedings of the XXII RAG of Forest Research Institute,
Dehradun**

The meeting of XXII RAG of the Forest Research Institute, Dehradun was held on 28th - 29th September, 2016 in the Board Room of FRI. The meeting was chaired by Dr. Savita, Director, Forest Research Institute. The meeting was attended by the following members of RAG-

SL.	Name	Designation & Organization
1.	Dr. Savita	Director, FRI
2.	Dr. B P Purohit	Joint Director, UCOST, Dehradun
3.	Dr. J C Kuniyal	Scientist-F, GBPNIHESD, JHP Unit, Mohal-Katta
4.	Dr. Charan Singh	Principal Scientist, IISWC, Kaulagarh, Dehradun
5.	Dr. N. K. Upreti	Scientist - G, Forest Products Division
6.	Shri. B P Gupta	CCF Research, Haldwani, Uttarakhand
7.	Shri. Saurabh Gupta	CCF (Hq), Punjab Forest Department
8.	Shri. Vinod Kumar	CF Research, Haryana
9.	Dr. Vimal Kothiyal	ADG (RP), ICFRE
10.	Ms Sarita	Lecturer, CASFoS
11.	Dr. Santan Barthwal	Scientist -E, G & TP Division, FRI
12.	Dr. R Thanga Pandian Pandiyan	Assistant Silviculturist, FRI
13.	Dr. Pramod Agarwal	Scientist - C, Ecology & CCFI Divison, FRI
14.	Shri. Trilok Singh Bisht	Founder BGS (NGO)
15.	Shri. Mam Raj Farmer	Farmer from Village Thaska, Haryana
16.	Shri. Vijay Jardari	Convener of Beej Bachao Aandolan
17.	Dr. N.S.K. Harsh	Group Coordinator (Research), FRI

Director FRI welcomed the members of RAG Dr. Dr. N.S.K. Harsh, Group Coordinator (Research)briefed about the procedures and importance of the RAG in prioritising the project proposals to be recommended for presentation before RPC.

A total of 45 projects were discussed in the meeting. The project wise recommendations are given as following:

S. N.	Title Name	PI	Comments of RAG members
Thrust area I- Managing Forests and Forests Products for Livelihood Support and Economic Growth			
1.	Studies on the Radio Frequency curing of adhesives in manufacturing of	Shri D.P. Khali	Recommended for RPC

2.	Seasoning studies on important species of bamboo for handicrafts using Dehumidifier kiln. And Vaccum kiln.	Dr. N.K. Upreti	Recommended for RPC with following suggestion- Species should be selected out of ten Bamboo species prioritized in NBM (ICFRE) funded project.
3.	Exploratory studies of Friction Induced Welding on Indian Wood Species for making Joints.	Shri Shailandra Kumar	Recommended for RPC. Possibility may also be explored to seek external funding.
4.	Study on role of nano-filler in wood composite and finger – jointed solid wood.	Mrs. Ismita Nautiyal	i. Background status need to be incorporated (add more references and review). ii. Remove the budget of Capital assets as the equipments are very much expansive and may be purchased from external funding. iii. Quantification of the formaldehyde emission may also be tried.
5.	Post fires impact on soil properties and microorganisms Chirpine and Oak forest of Uttarakhand.	Dr. B.M Dimri	i. The study on microorganisms should be incorporated as they are affected by forest fires. ii. Quarterly/Seasonal collection of samples from study area should be included in the project.
6.	Redefining the strength classification of selected bamboo species.	Shri Rajesh Bhandari	Recommended for RPC
7.	Assessment of preservation and permanent plots of Uttarakhand and Himachal Pradesh.	Shri Jawaid Ashraf	Recommended for RPC

8.	Conservation of diminishing native fruit species in Vindhya Region of Eastern Uttar Pradesh.	Dr. Anita Tomar	<ul style="list-style-type: none"> i. Project activity and methodology should match with the title ii. Total number of species should be reduced and the project to be resubmitted. iii. Include conservation part by incorporating at least two species. iv. Budget should be in proper format
9.	Development of a solar heated vacuum dryer with a thermal energy storage system.	Shri Shailandra Kumar	<ul style="list-style-type: none"> i. Incorporate comparative study of vacuum, thermal storage and traditional techniques, respectively. ii. Size of the tank should be at least 5 feet long and budget may be increased accordingly.
10.	Develop harvesting regimes of selected temperate medicinal plants in Uttarakhand.	Dr. B.P. Tamta	<ul style="list-style-type: none"> i. In methodology part the harvesting technique and practice of harvesting to villagers of study area for conservation and extension strategy need to be mentioned clearly. ii. Extension component with budget may be added in the project.
11.	Development of Kharik (<i>Celtis australis</i>), Bhimal (<i>Grewia optiva</i>) and Kadam (<i>Anthocephalus cadamba</i>) based agroforestry models on farmers land under rainfed conditions in Uttarakhand.	Dr. Charan Singh	<ul style="list-style-type: none"> i. Agro-forestry model should be in line with suitable choice of crops (native crop along with specific trees). ii. Crop sequences need to be identified. iii. The Extension activity may be included in the study iv. <i>Celtis australis</i> may be replaced by <i>Bauhinia variegata</i> for foothills. v. Model of bund planting may be incorporated. vi. JRF may be incorporated in place of Field Assistant (FA). vii. Allelopathic studies should also be included
12.	Conservation of <i>Litsea glutinosa</i> – An endangered and threatened medicinal tree of North-west Himalaya.	Dr. Nawa Bahar	Recommended for RPC

13.	Epidemiology and management of <i>Chlorophorus annularis</i> Fab. (Coleoptera: Cerambycidae) – A major borer of cut and dry bamboo.	Dr. K.P. Singh	Recommended for RPC
14.	Insect pest of west Himalayan oaks and their control.	Dr. A.P. Singh	<ul style="list-style-type: none"> i. Areas of Oak forests where insect-pest outbreaks have been noticed till date need to be specified. ii. The remote sensing data (Satellite Image) may be used for generating maps so that maps can be compared with the native area of Oak forests where outbreaks of insect pests tend to happen. iii. In place of field assistants, 2
15.	Development of <i>Gmelina arborea</i> and <i>Embllica officinalis</i> based Agro-forestry models on degraded lands in Uttarakhand and Uttar Pradesh.	Shri Rambir Singh	<ul style="list-style-type: none"> i. Use bund plantations in agro-forestry model. ii. Remove the budget of capital assets and same may be included in FRE. iii. Include two more experimental sites in U.P. with assistance of CSFER, Allahabad. iv. Objectives may be well defined. v. Compare the results of earlier project on similar lines conducted with <i>Melia composite</i> and <i>Embllica officinalis</i>
16.	Modification of difficult to treat timbers by Microwave technique for improving impregnation of preservatives.	Shri Azmal Smani	Anatomical study for microscopic structure and strength properties of timbers before and after the treatment may also be included.

17.	Utilization of forest biomass through value added application as source of natural dyes.	Dr. Rakesh Kumar	Recommended for RPC. Selection of species should be as per availability of raw material to make it a viable option.
18.	Performance evaluation of imported timbers after treatment with conventional (CCA.CCB and environmental – safe (ZiBOC) preservative in prototype cooling tower.	Shri Azmal Smani	Recommended for RPC with following comments: i. Exotic timber species should be used with generic name as far as possible, however, the Trade name/s of species whose generic name/s is/are not known may be included. Identification of timber species should be included with the help of Wood Anatomy Discipline. ii. Design mega project for 10 years covering a number of species for this work (discussed again on 29 th September 2016).
19.	Assessment of decay in trees by non destructive technique.	Dr. Y.M. Dubey	i. Software should be developed using existing excel sheets. ii. Accordingly budget may be increased.
20.	Nutritional and quality evaluation of selected wild edible plants as a source of functional food.	Dr. Y.C. Tripathi	Recommended for RPC with comments: i. Possibility for inclusion of <i>Pyricantha</i> (Vern. Ghingharu) may also be explored.
21.	Bioprospecting of <i>Pinus roxburghii</i> needles wax and other extractives.	Dr. Vineet Kumar	i. Literature survey may be removed from the project activity and methodology. ii. Analyse the end product except (N number) utilization by green chemistry. iii. Budget of capital assets (equipment) may be incorporated. iv. Holocellulose may be taken for better utilization of needles instead of hemi-cellulose. v. There should not be any duplication of the work already done with pine needles such as dye and compost preparation.

22.	Studies on phytochemical profile of <i>Osyris quadripartite lanceolata</i> for improved utilization.	Dr. A.K. Pandey	<ul style="list-style-type: none"> i. Soxhlet Extraction Unit may be purchased in M&S. ii. Reduce the budget of equipment (capital assets).
23.	Fragrant oxime ethers from naturally occurring carbonyl compounds.	Dr. V.K. Varshney	Recommended for RPC
24.	Impact assessment of mycorrhizal inoculation on the growth and health of important medicinal plants.	Dr. Ranjana Juwantha	Native species should also be included.
25.	Evaluation of indigenous tree species for reclamation of salt affected lands in Agro-climatic zones of eastern Uttar Pradesh.	Shri Alok Yadav	Recommended for RPC. Work done earlier should be referred.
26.	Enzymatic intervention for quality improvement of essential oil from <i>Cyperus scariosus</i> and <i>Zanthoxylum armatum</i> .	Dr. Rashmi	Recommended for RPC

27.	Evaluation of Germplasm of <i>Quercus leucotrichophora</i> (Banj Oak) for improvement in fodder characteristics and productivity to enhance rural economy in Garhwal Himalayas.	Dr. Meena Bakshi	<ul style="list-style-type: none"> i. Project may be revised and resubmitted. ii. Reformulate the project in-light of selecting natural population as seed source and planting the seedlings in natural place of occurrence. iii. Restrategize the project proposal so that it could benefit the society. iv. A Co-PI should be included under this project. v. Duration of the project should be increased up to 4 years.
Thrust Area II- Biodiversity Conservation and Ecological Security			
1	Butterflies associated with different forest types/sub – types	Dr. A.P. Singh	Outbreak of butterflies as well as their impact as insect pest population should be monitored and included in the study.
2	Establishment of Western Himalayan Raw Drug Repository.	Dr. A.K. Sharma	Recommended for RPC
3.	Digitization and enrichment of National Forest Insect Collection (NFIC) of Forest Research Institute, Phase-II.	Dr. Sudhir Singh	Recommended for RPC
4.	Molecular characterization of selected medicinal plants of Uttarakhand.	Ms. Ranjana Negi	Work on medicinal plants by CCMB Hyderabad may be reviewed before selecting the species for molecular characterization study.
5.	Studies on taxonomy and host range of larval parasitoids <i>Apanteles</i> spp. (Hymenoptera: Braconidae) from Uttarakhand and Haryana.	Dr. Mohd. Yousuf	Recommended for RPC

6.	Molecular Phylogenetic study of Indian Meliaceae.	Dr. Anup Chandra	Revise the project in the light of the discussions held in RAG meeting giving justification, relevance and usefulness of the research.
7.	Studies on Fibres morphology of Indian Hardwoods and development of Database for their efficient utilization by industry.	Dr. Sangeeta Gupta	Review the budget for JRF as per ICFRE guidelines. The project was recommended for exploring external funding in XVI RPC meeting held during 27-28 February 2015.
Thrust Area III- Forest and Climate Change			
1.	Carbon Sequestration and Carbon dioxide Emission from the Soils under different Forest Covers in Uttarakhand.	Dr. Vijender Pal Panwar	<ul style="list-style-type: none"> i. Number of species seems to be more for the study; hence species number may be reduced. ii. Project needs to be re-discussed at Institute level.
Thrust Area IV- Forest Genetic Resource Management and Tree Improvement			
1.	Evaluation of Germplasm and Transcriptome studies in Eucalypts for Water logging and Salinity.	Dr. Santan Barthwal	<ul style="list-style-type: none"> i. Formulate multi institutional project involving IFGTB and PFD. ii. Central Soil Salinity Research Institute, Karnal may be consulted for salinity studies.
2.	Study of Structural Dynamics and Genetic Improvement of <i>Grevillea robusta</i> A. Cunn (Silver Oak).	Dr. Maneesh S. Bhandari	Recommended for RPC
3.	Screening of Popular clones for resistance against	Dr. Arvind Kumar	Field study in objective no 3 may be defined in the methodology.

	Poplar leaf defoliator, <i>Clostera cupreata</i>		
4.	Molecular Mechanism of Rhizome growth and Development in <i>Dendrocalamus strictus</i> .	Dr. Santan Barthwal	Director, RFRI may be contacted for becoming a part of this project along with the existing on-going project of ICFRE.
5.	<i>In vitro</i> propagation of phenotypically promising Eucalypts and molecular evaluation of genetic fidelity of clones.	Dr Shambha vi Yadav,	Long term objectives may be modified. Consult IFGTB for Genetic fidelity study, if conducted
6.	Characterization of the Hill Bamboo Species (Ringal) of North-Western Himalayas for their Conservation and Genetic Improvement.	Shri Rajendra Kumar Meena	i. Rationalize the purpose of the study ii. Consult more literature including earlier work of FRI so that duplication of work can be avoided.
7.	Introduction and Genetic Evaluation of <i>Dalbergia latifolia</i> (Rose Wood) in Northern India.	Dr. Maneesh S. Bhandari	i. Reframe the objective No. 3. ii. Revisit the literature.
8.	Evaluation and Micro-propagation of superior genotypes of <i>Bambusa nutans</i> .	Shri J.M.S. Chauhan	Recommended for RPC. Refer earlier work done on tissue culture of this species.
Thrust Area V- Forestry Extension for taking Research to People			
1.	Dissemination of Technologies developed by Forest Research Institute,	Dr. Charan Singh	i. Objectives at 1 & 2 may be amended to replace the words 'to identify' with 'to select' and 'to prioritize' ii. Expected outcomes may be

	Dehradun to different stakeholders.		modified and reviewed.
2.	Forestry Skill Development Certificate Courses on “Seed, Nursery and Plantation Technology” and “Silviculture Operations”.	Dr. Neelu Gera	Recommended for RPC

The progress of eleven ongoing plan projects was also presented by HoDs. Following are the comments pertaining to six specific ongoing plan projects. Other five ongoing plan projects were recommended to continue as per their approved plan-

On-going Projects

Sl. No.	Title Name	PI	Comments
1.	Development of processing Techniques and durability improvement of <i>Melia composita</i> for value addition. “Studies on natural durability of plantation grown species with non-conventional eco-friendly preservatives.”	Dr. Sadhna Tripathi	One year extension recommended under remaining budget.
2.	Use of near infrared spectroscopy for rapid evaluation of physical and strength properties of <i>Melia</i> spp.	Dr. Y.M. Dubey	i. Equipment may be repaired as early as possible. ii. Co-PI may be included for the project so that work couldn't be hampered due to retirement of PI.
3.	Value addition and Utilization of <i>Cassia tora</i> seeds.	Dr. Pradeep Sharma	i. Project need to be discussed at the Institute level and transferred to Chemistry Division which has the facility and expertise to work on the project as proposed by Head, Chemistry Division. ii. NOC may be obtained from Dr. Pradeep Sharma for transfer of the project otherwise the project may be transferred to RFRI.
4.	Selection of superior Quality Germplasm of <i>Oroxylum indicum</i> -An endangered species.	Dr. B.P. Tamta	i. Project may dropped ii. PI of the project should inform GCR office about funding obtained from external funding agency.
5.	Assessment of hydrological services imparted by forest of Kempty watershed (Mussoorie).	Dr. Parmanand	i. Time line should be formed and clarify the objectives achieved on it to the DFRI. ii. Equipment should be procured immediately.

6.	AICP on Genetic Improvement of <i>Melia composita</i> Wild.	Dr. Ashok Kumar	i. Dr. Kumud Dubey may be added as Co-Investigator for the project. ii. The species <i>Melia composita</i> name should be adopted by all participating Institutes as it is reflected in original project proposal by submitted by Coordinator.
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Suggestions of RAG Chairperson and Members:

1. New intake of Scientists and Research Officers should be regularised effectively so that new brain could be infused before retirement of senior scientists.
2. Research on honey bee may be taken up for improving the population of bees and quality of honey in forest as well as human habitations located nearby to support livelihood.
3. Value addition to Chir pine cones and seeds and other value added products of the species should be explored.
4. Research on food habit of wild animals should be taken up. Trees and plants providing food for wildlife are to be planted in forest lands so that wild animals could not infiltrate human habitation.
5. Research conducted by FRI should be put up in public domain for transfer to the user groups like Forest Departments, Industries, Farmers, etc. through magazines, Annual Report/ Bulletin or Annual Booklet, etc.
6. Research on depletion of water resources and augmenting the same by inclusion of forest and tree species suitable for water conservation should be addressed.
7. All State related problems and proposed research projects may be submitted to concerned States for funding under CAMPA.
8. Problems of farmers and local community should be addressed on priority.
9. Repetition of same work should be avoided for research proposal
10. Coordinated research proposals should be formulated so that different institutes of ICFRE can conduct research on different aspects of the same species. Suitable guidelines should be developed for implementation of such coordinated projects for smooth and effective coordination and collaboration between the partner institutes and scientists.

The meeting ended with vote of thanks by GCR to the Director FRI, RAG members, Head of the Divisions, Rapporteurs, Scientists, PLO, official staff of GCR and all concerned.