

Proceeding of XXI RAG

A meeting of XXI RAG of the Forest Research Institute, Dehradun was held on 14-15th January, 2015 in the Board room of FRI. The meeting was chaired by Dr. P.P. Bhojvaid, Director Forest Research Institute. The meeting was attended by the following members of RAG.

SL.	Name	Designation & Organization
1.	Dr. P.P. Bhojvaid	Director, FRI
2.	Shri R. K. Shukla	PCCF, T&R, U.P.
3.	Dr. S.K. Singh	CCF, Research Uttarakhand, Haldwani
4.	Dr. Vinod Kumar	Director/SC-F, SERB/DST New Delhi
5.	Dr. Subhash Nautiyal	Scientist - G, Botany Division
6.	Dr. Anoop Upadhyay	CCF, Punjab
7.	Dr. Jagdish Chander	CF (R), Haryana Forest Department, Pinjore,
8.	Dr. R.C. Sundriyal	G.B.Pant University, Him,Env. Dev, Almora
9.	Dr. T.P. Singh	ADG (B&CC), ICFRE
10.	Dr. Vimal Kothiyal	ADG (RP), ICFRE
11.	Dr. S.P.S. Rawat	ADG (M&E), ICFRE
12.	Shri M. P. Singh	Head CC&FI Division
13.	Dr. N. Chauhan	SIC, CAP, Selaqui, Dehradun
14.	Dr. Ashok Kumar	Scientist -E, G & TP Division, FRI
15.	Shri Umesh Kumar	DCF, Extension Division, FRI
16.	Ismita Nautiyal	Scientist - C, Forest Product Division, FRI
17.	Trilok Singh Bisht	Founder BGS (NGO)
18.	Mam Raj Farmer	Farmer from Haryana
19.	Dr. N.S.K. Harsh	Group Coordinator (Research)

The following HoDs including Scientists from RCS also attended the meeting-

1.	Dr. Sangeeta Gupta	Scientist- F & Head, Botany Division, FRI
2.	Dr. Sadhna Tripathi	Scientist -F & Head, Forest Products Division, FRI
3.	Shri Kunal Satyarthi	Head, Silviculture Division, FRI
4.	Dr. Sudhir Singh	Scientist- F & Head, Entomology Division, FRI
5.	Dr. H.S. Ginwal	Scientist- F & Head, G&TP Division FRI
6.	Dr. V.K. Varshney	Scientist- F & Head, Chemistry Division FRI
7.	Dr.P.K. Gupta	Scientist- F & Head, C&P Division, FRI
8.	Dr. N.K. Upreti	Scientist -F, Research & Coordination Section, FRI
9.	Dr. A. K. Sharma	Scientist-E & Head, NWFP Division, FRI
10.	Dr. H.B. Vasistha	Scientist -E & Head, E & E Division, FRI
11.	Dr. M.K. Gupta	Scientist- E & Head, FS&LR Division, FRI
12.	Dr. P.S. Rawat	Scientist- E, Research & Coordination Section, FRI
13.	Dr. Tara Chand	Scientist -C, Research & Coordination Section, FRI

Director FRI welcomed the members of RAG. He also briefed about the procedures and importance of the RAG in prioritising the project proposals to be recommended for RPC

A total of 43 projects which includes 23 new projects and 20 on the shelf RPC approved were discussed in the meeting. The project wise recommendations are given in annexure I-A & I-B.

The ADG (RP) has told that the budget for projects to be sent to RPC should be as per ICFRE prescribed budget heads (five heads).

The progress of the 24 ongoing projects of the Institute was also presented Division wise in the meeting. Out of these, 11 projects are having rolling plans. On request of a PI and discussions by RAG members, one of the ongoing plan projects was decided to be discontinued and PI was asked to submit its closure report. The recommendations of RAG regarding these rolling plan projects are given in Annexure II. The members of RAG also participated in the discussion for the overall improvement of the projects.

The Chairman, RAG concluded the meeting with the assurance that the comments and suggestions received from the members of the RAG will be incorporated in the finalization of the projects for onward submission to RPC. The Chairman of the committee also appreciated the criticism held during the deliberations of the projects before the members of the RAG in shaping of the projects through scientific inputs before recommending to RPC.

The meeting ended with vote of thanks proposed by Dr. N. S. K. Harsh, Group Coordinator (Research)

Annexure- I-A

Recommendations of XXI RAG (On New project proposals)

S.N.	Title of the project, duration, budget	Name of the PI	General comments	Specific comments
Thrust Area I. Managing forest and forest products for livelihood support and economic growth				
1.	Study on insect pests of medicinal plants under silvi-medico-agro-forestry systems in Uttarakhand and their eco-friendly management. 3 Years, Rs. 8.65 Lakh	Ram Bahadur Singh, Scientist-B	<ul style="list-style-type: none"> • RAG members asked if there is any data available pertaining to the loss incurred by insects in such system • One of the members also remarked that there is no such system existing in the State proposed to be taken up for the study 	Dropped
2.	Variation in wood anatomical properties and specific gravity in relation to age in <i>Populus deltoides</i> Bartr. ex Marsh. 3 Years, Rs. 14.64 Lakh	Dr. P. K. Pande, Scientist-E	<ul style="list-style-type: none"> • CCF Research UK Forest Department asked to submit a revised project which includes the clones developed by Uttarakhand Forest Department along with DNA fingerprinting. • A revised proposal to be submitted to CCF (Research) Haldwani, Uttarakhand Forest Department for Financial support 	Recommended for RPC
3.	Hemicellulose pre-extraction and application as Wet End Additive in Papermaking. 3 Years, Rs. 8.84 Lakh	Dr. P. K. Gupta Scientist – F	<ul style="list-style-type: none"> • It was discussed in the house that the project is having industrial importance, so it may simultaneously be submitted to Thaper Industry also for consideration 	Not Recommended as the Technical criteria score is less than 70.

4.	Preparation and applications of cationized nano-cellulosic strength agents for paper making. 3 Years, Rs. 12.47 Lakh	Dr. Vikas Rana, Scientist – D	<ul style="list-style-type: none"> PI will also explore the possibility of funding from External agencies 	Recommended to RPC
5.	Phyto-chemical analysis and utilisation of <i>Sida acuta</i> . 3 Years, Rs. 9 Lakh	Dr. Vineet Kumar, Scientist-F	<ul style="list-style-type: none"> PI will also explore the possibility of funding from External agencies 	Recommended for RPC
6.	Inter-planting effects of some leguminous trees with <i>Santalum album</i> in relation to growth and survival under pot culture conditions. 3 Years, Rs. 9.77 Lakh	Dr. S.P. Chaukiyal Scientist – D	<ul style="list-style-type: none"> Lot of work has been done on host specific aspects on <i>Santalum album</i>. There is no need to work in pot culture conditions 	Dropped
7.	Drying studies on selected species of chemically bulked bamboos using Dehumidifier kiln. 2 Years, Rs. 5.60 Lakh	Dr. N. K. Upreti, Scientist-F	<ul style="list-style-type: none"> Approved. However, ADG (RP) suggested that species included in the project may be taken up in BTSG project being implemented by FPD Division. The PI requested for additional budget and time for the proposed work if it is to be done under ICFRE funded BTSG project of Forest Products Division. 	Recommended to RPC
8.	Assessment of soil carbon flux in broad leaved and coniferous forest in Uttarakhand. 3 Years, Rs. 7.28 lakhs	Dr. Parul Bhatt Kotiyal, Scientist-D	<ul style="list-style-type: none"> The project may be revised and prepared by taking all forest types of Sal existing in Uttarakhand 	Recommended to RPC
9.	Value addition and utilization of <i>Cassia tora</i> seeds. 3 years, Rs. 13.431 lakhs	Dr. Pradeep Sharma, Research Officer	<ul style="list-style-type: none"> The authenticity of seed may be confirmed whether it is being collected from Market or from nature CCF (Research), 	Recommended to RPC

			<p>UK also opined that instead of <i>Cassia tora</i>, other Gum species in jurisdiction states may be taken up if possible</p> <ul style="list-style-type: none"> • 10% surplus charge included in the budget may be deleted 	
10.	<p>Studies on Fibers morphology of Indian Hardwoods and Development of Database for their efficient utilization by industry. 3 years, Rs. 12.80 lakhs</p>	<p>Dr. (Mrs.) Sangeeta Gupta, Scientist-F</p>	<ul style="list-style-type: none"> • Species to be taken up for the study may be listed in the proposal • <i>Buxus wallichiana</i>, <i>Ficus andamanica</i> and <i>Acacia albida</i> may also be included for the study 	<p>Recommended to RPC</p>
11.	<p>Poplar based agroforestry in eastern Uttar Pradesh for diversification of agriculture. 5 years, Rs. 16 lakhs</p>	<p>Dr. Anita Tomar</p>	<ul style="list-style-type: none"> • Availability of data of established clones in different location may be given in the proposal • PI may visit Lalkuan nursery of Utrakhand Forest department for availability of poplar clones • Tested clones may be used for evaluation • If possible <i>Melia composita</i> may also be tried for field evaluation • Dr. Y P Singh also suggested that study conducted by Dr. N B Singh in Sultanpur may also be consulted • Project title may be modified as "Evaluation of Poplar clones in Eastern UP" and proposed work 	<p>Recommended to RPC</p>

			should include as many clones as possible.	
12.	Assessment of Suitable clones of Eucalyptus for Promotion of Agro forestry in Eastern U P. 5, years, 8.43 Lakh	Dr. Anubha Srivastav, Scientist-B	<ul style="list-style-type: none"> • Answering a query the PI informed that the earlier work done by SFRI Uttar Pradesh have been reviewed. • Multilocation trials of established clones may be taken up in the study • PI may submit the project for funding from CAMPA budget of UP SFD 	Recommended to RPC
Thrust Area II. Biodiversity conservation and ecological security				
13.	Updating the names of insect species present in the National Forest Insect Collection (NFIC) and NFIC-Database of Forest Research Institute. 5 years, Rs. 16 Lakh	Dr. Sudhir Singh, Scientist-F	<ul style="list-style-type: none"> • It is a routine data updating work of the Division • External funding may be approached for financial support by popularising and linking the project on climate change aspects • Explore the possibility of creation of Revolving fund for the purpose 	Not Recommended as the Technical criteria score is less than 70.
14.	Tree health status in landslide affected areas of Kedar valley, Uttarakhand. 3 Years, Rs. 10.71 Lakh	Dr. Ashwani Tapwal, Scientist-D	<ul style="list-style-type: none"> • Chairman suggested that it should be funded by Uttarakhand Forest Department • There is no base line study done on this aspect • No assessment has been done on pathogen development specifically on severe landslides in such a fragile ecosystem. • External funding 	Recommended to RPC

			from Uttarakhand Forest department/ UCOST may be explored.	
15.	Effects of forest fires on soil properties in Tons and Upper Yamuna Forests of Uttarakhand Himalayas. 3 Years, Rs. 7.57 lakhs	Dr. B.M. Dimri, Scientist - C,	<ul style="list-style-type: none"> • Periodic assessment of fire by putting experiment under control conditions should be done. • work may be taken up with a requirement of forest department • Project needs proper designing and input from Forest department 	Recommended to RPC
16.	Conservation of threatened Wild Edible Fruits plant species through Domestication. 3 years, 6.85 lakhs	Dr.Anita Tomar	<ul style="list-style-type: none"> • Exclude Bel, Jungle jalebi from the study • Include Feronia and Khirini species for the study • Germplasm from different sources may be taken up • Title may be changed appropriately 	Not Recommended as the Technical criteria score is less than 70.
Thrust Area III. Forests and Climate Change				
17.	Compilation of biomass studies from various sources and development of BEF and R:S from the available data. 2 Years, Rs. 2.8 Lakh	Dr. (Mrs.) Laxmi Rawat, Scientist-F	Approved	Recommended to RPC
18.	Analysis of climatic data of New Forest for working out changing trends of various climatic variables over recent past. 2 Years, Rs. 2.8 Lakh	Dr. (Mrs.) Laxmi Rawat, Scientist-F	Approved	Recommended tor RPC
19.	Indigenous knowledge in	Dr. (Mrs.) Laxmi	<ul style="list-style-type: none"> • Lot of work has been done on this 	Dropped

	mitigating the effects of climate change in tribal regions of Uttarakhand, Himalaya. 2 1/2 Years, Rs. 8.52 Lakh	Rawat, Scientist-F	aspect at national level.	
20.	Estimation of carbon stock of different shrubs species under sal forest. 2 Years, Rs. 3.82 Lakh	Dr. Pramod Kumar, Scientist - D	<ul style="list-style-type: none"> • Proper statistical design and sampling design may be followed to carry out the study • Work done by FSI may be cross checked on the lines of study proposed by the PI 	Not Recommended as the Technical criteria score is less than 70.
21.	Study on adaptive response of plants to elevated CO ₂ conditions. 3 Years, Rs. 32.62 Lakh	Dr. Hukum Singh RO	<ul style="list-style-type: none"> • Mention species to be taken for study in the project proposal • Species should be selected critically after consulting literature • Explore external funding by formulating a project on larger extent 	Recommended to RPC
Thrust Area IV. Forest Genetic resource management and tree improvement				
22.	Selection of Superior Quality Germplasm of <i>Oroxylum indicum</i> - an endangered species. 3 Years, Rs. 11.46 lakhs	Dr.B.P Tamta, Scientist-D	<ul style="list-style-type: none"> • Approximately 90 % of seeds are being consumed for hat (Topi)making in HP 	Recommended to RPC
23.	Screening of Germplasm of Selected Medicinal Plants for Quality Planting Material. 2 years, Rs. 10.428 lakhs	Dr. Pradeep Sharma, Research Officer	Approved	Recommended to RPC

Annexure- I-B

Recommendations of XXI RAG (On On-the-Shelf RPC approved proposals)

S.N.	Title of the project, duration, budget	Name of the PI	General comments	Specific comment
Thrust Area I. Managing forest and forest products for livelihood support and economic growth				
1.	Evaluation of some biopesticides for the management of termites in nurseries and plantations, 4 years, Rs. 10.54 Lakh. (approved in 13th RPC meeting, reapproved in 15th RPC meeting)	Dr. Shamila Kalia	<ul style="list-style-type: none"> PI has agreed to raise funds for execution of the project from external sources and will explore funding from external funding agency 	Not Recommended as the Technical criteria score is less than 70.
2.	Management of fungal discolouration (molding) of bamboo for handicrafts, furniture and other utility items to help artisans. 4 Years, Rs. 14.99 Lakh. (approved in 13th RPC meeting)	Dr. N S K Harsh	-	PI wishes to drop the proposal
3.	Studies on finishing aspects of <i>Dendrocalamus strictus</i> , 2 Years, Rs. 5.2 Lakh (approved in 13th RPC meeting)	Dr. Kishan Kumar	<ul style="list-style-type: none"> The project may be submitted for funding from National Bamboo Mission by citing reference of the work done in Common Facility Centre for bamboo in FPD Restructure the project for 	Recommended to RPC

			submission to NBM	
4.	Production of Reducing Sugars through pre-treatment of Lignocellulosic biomass for bioethanol., 3 years, Rs. 8.84 lakh. (approved in 14th RPC meeting)	Dr. P.K. Gupta	<ul style="list-style-type: none"> It was discussed in the house that the project is having industrial importance. 	Recommended to RPC
5.	Chemical examination and value addition of edible mushrooms <i>Astraeus hygrometricus..</i> Varshney, 2014-16 (3 Years). (approved in 15th RPC meeting)	Dr. V.K. Varshney	<ul style="list-style-type: none"> Project has industrial importance May be put up to JICA-UP, IEP (MoEF) 	Recommended to RPC
6.	Use of near infrared spectroscopy for rapid evaluation of physical and strength properties of <i>Melia</i> spp. 2014-15 (2 Years), Rs. 3.95 Lakh. (approved in 15th RPC meeting)	Dr. Y.M. Dubey,	<p>Approved</p> <ul style="list-style-type: none"> Duration increased from 2 to 3 years Budget increased from Rs. 3.95 to Rs. 5.70 Lakh 	Recommended to RPC
7.	Effect of different adhesives on the bending strength of finger jointed <i>Eucalyptus</i> sections. 2014-17 (3 years),Rs. 9.98 Lakh. (approved in 15th RPC meeting)	Dr. Kishan Kumar V.S	<p>Approved</p> <ul style="list-style-type: none"> Budget increased from Rs. 9.98 Lakh to Rs. 14.77 Lakh 	Recommended to RPC
8.	New Forest Handicraft Extension counter at FRI., 2014-16 (2	Dr. K P Singh	Approved	Recommended to RPC

	years), Rs. 6.6 Lakh. (approved in 15th RPC meeting)			
Thrust Area II. Biodiversity conservation and ecological security				
9.	Quantification and conservation of <i>Indopiptadenia oudhensis</i> , <i>Ilex pseudo-odorata</i> , <i>Trachycarpus takil</i> , <i>Cochlospermum religiosum</i> , <i>Turpenia nepalensis</i> Rare/ Endangered trees of Uttarakhand., 3 years, Rs. 6.97 Lakh. (approved in 14th RPC meeting)	Ms. Ranjana Negi	-	PI wishes to drop the proposal
10.	Development and extension of Trichoderma spp. based formulation for disease biocontrol and plant growth promotion of eucalypts seedlings. 2014-17 (3 Years), Rs. 14.08 Lakh (approved in 15th RPC meeting)	Dr. Amit Pandey,	Approved	Recommended to RPC
11.	Impact assessment of forest fire on ecology and forest vegetation on the forests of Uttarakhand., 2014-17 (3 years), Rs. 8.04 Lakh (approved in 15th RPC meeting)	V.K. Dhawan	RPC suggested that this project may be merged with the new project submitted on similar aspect by Dr. B M Dimri, Scientist, FSLR Division (Sl no. 15 in new proposals)	Recommended to RPC after merging with New project of Dr. B M Dimri

12.	Seed Bank Dynamics in Sal forests of Doon Valley., Sci-D, 2014-18 (4 years), Rs. 12.40 Lakh (approved in 15th RPC meeting)	Dr. Ombir Singh	Approved	Not Recommended as the Technical criteria score is less than 70.
13.	Nodulation and nitrogen fixation study in the <i>Sesbania rostrata</i> Brem. in relation to fertility of the soil., 2014-17 (3 years), Rs. 7.46 Lakh (approved in 15th RPC meeting)	Dr. S. P. Chaukiyal	<ul style="list-style-type: none"> • May be Modified for field applications • Species as <i>Indigofera limifolia</i> may be taken up 	Not Recommended as the Technical criteria score is less than 70.
Thrust Area III. Forests and Climate Change: Nil				
Thrust Area IV. Forest Genetic resource management and tree improvement				
14.	Clonal propagation of newly developed superior hybrids/genotypes of Eucalypts and their deployment in the field (Phase-III).3 years, Rs. 18.78 Lakh. (approved in 14th RPC meeting)	Ms. Parveen	Approved	Recommended to RPC
15.	Field evaluation of recombinants emanating from F ₁ and F ₂ generations of <i>Corymbia citriodora</i> (Syn. <i>Eucalyptus citriodora</i>) Hook. × <i>C. torelliana</i> (Syn. <i>Eucalyptus torelliana</i>) F.v. Muell for high productivity (Follow Project)., 6 years, Rs. 19.91	Dr. Ajay Thakur	Approved	Recommended to RPC

	Lakh. (Approved in 14th RPC meeting)			
16.	Cytogenetic investigations in selected forest tree species., 3 years, Rs. 22.71 Lakh. (approved in 14th RPC meeting)	Dr. Rama Kant	Approved	Not Recommended as the Technical criteria score is less than 70.
17.	Genetic diversity and adaptability through morphological and molecular markers in <i>Dalbergia sissoo</i> Roxb., 3 years, Rs. 24.86 Lakh. (approved in 14th RPC meeting)	Dr. Ashok Kumar	Approved	Recommended to RPC
18.	Selection and genetic evaluation of <i>Ailanthus excelsa</i> germplasm in Northern India. 2014-18 (4 Years), Rs.41.05 Lakh. (approved in 15th RPC meeting)	Dr. Rama Kant,	Approved <ul style="list-style-type: none"> • FRE expenditure to be reduced 	Recommended to RPC
19.	Development of Microsatellite and DNA Barcoding based methods for tracing timber origin for <i>Cedrus deodara.</i> , 2014-17 (3 yrs), Rs. 20.19 Lakh. (approved in 15th RPC meeting)	Dr. Santan Barthwal	<ul style="list-style-type: none"> • PI may also submit the project for external funding from DBT 	Recommended to RPC
20.	In vitro selection of salt stress tolerant genotypes of <i>Dalbergia sissoo</i> Roxb2014-18 (4 Years), Rs.	Rajendra Kumar Meena,	-	PI wishes to drop the project

	31.00 Lakh. (approved in 15th RPC meeting)			
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Annexure- II

Rolling plans of ongoing projects discussed in XXI RAG meeting

Sl No	Title of the project	PI, Division	Justification & Rolling plan	RAG's comments
1	Studies on Taxonomy of the Family Eulophidae Hymenoptera: Chalcidoidea) present in National Forest Insect Collection (NFIC), except Doon Valley.	Dr. Sudhir Singh, Entomology Division	<p>20% of identification work is remaining and needs time of one year to finish. There is no technical man power in the project except the PI. The identification work could not be completed as the PI was involved for the past two years in ICFRE consultancy project on "Preparation of Reclamation and Rehabilitation Plans for the iron ore mines in Karnataka". In this period tours of 160 days were undertaken during the years 2012-13 & 2013-14. This diversion of time has affected the progress of the project.</p> <p>Hence, One year extension is requested i.e. up to March 2016 within the sanctioned budget outlay.</p>	Recommended to RPC for One year extension i.e. up to March 2016 within the sanctioned budget outlay.
2	Prospecting fungal resources for development of natural dye. (2012-15)	Dr. Rakesh Kumar, Chemistry Division	<p>Since the project is interdisciplinary, the project activities are going on simultaneously in two different Divisions i.e. Chemistry and Pathology Division. The technical plan of the project involve extensive laboratory work in pathology division, chemical evaluation and analytical activities including collection of fungi from field, isolation, pure culture preparation, cultivation in liquid and solid media, preservation of culture in mineral oil, extraction of dye from fungal species, dyeing and mordanting trials with the</p>	Recommended to RPC for One year extension i.e. up to March 2016 with provision of skilled manpower within the sanctioned budget outlay.

			<p>extracted dyes on different textile materials, determination of colorfastness determination of CIEL*a*b* hue, chroma and K/S values of each dyed fabrics etc which requires manpower.</p> <p>However no manpower was approved for such an extensive work. To expedite the work a skilled manpower was engaged through service provider after a lapse of seven months from the commencement of the project. Due to paucity of fund no regular manpower could be engaged which hampers the project work to a larger extent. Also budget allotment during the year 2012-13, 13-14 and 14-15 were quite delayed. Due to these constraints it is not possible for the PI to complete the entire project activities as per action plan till March 2015.</p> <p>In view of the above the project is proposed to be extended for a period of 12 months wef April 01, 2015 with provision of a skilled manpower to enable the PI to carry out the activities still remained on account of the above mentioned constraints so as to achieve the objectives.</p>	
3	Structural studies and utilisation of <i>Acacia tortilis</i> gum exudates. (2012-15)	Dr. Vineet Kumar, Chemistry Division	In the objectives, it was envisaged to carry out precise structural studies of <i>Acacia tortilis</i> gum exudates. The work involved extensive work on isolation of polysaccharide, purification, hydrolysis, derivatisation, methylation, periodate oxidation, GC and GC-MS recording and analysis, NMR	Recommended to RPC for One year extension i.e. up to March 2016 within the sanctioned budget outlay.

		<p>recording and analysis and complete data interpretation. Accordingly one JRF was proposed in the project for the entire duration of the project. However, due to budget constraints the JRF was not sanctioned. This necessitated its extension for a period of one year.</p> <p>Further, GC-MS and NMR were not available in the division upto March 2014. One GC-MS was procured in the division but still due to column compatibility and related problems satisfactory and validated data is yet to be obtained. Hence spectroscopic recording could not be done due to non-availability of the instrument. In the present year all efforts are being made for recording of NMR. In this context, it is submitted that the work to be done at an outside laboratory is sometimes not satisfactory when the research components are involved.</p> <p>The budget allotment during the previous years was not as per budgetary requirement and also released after a considerable period of time which also contributed to delay in implementation of desired outputs.</p> <p>In view of above, it is kindly requested to extend the project period for one year with effect from April 2015 to carry out all the activities according to the approved objectives of the</p>	
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			project. The balance amount of the project is proposed to be utilized in the extension period.	
4	Utilization of <i>Pinus roxburghii</i> needles for value added products. (2012-15)	Dr. Vineet Kumar, Chemistry Division	<p>In the objectives, it was envisaged to carry out structural analysis of <i>Pinus roxburghii</i> wax, optimization of conditions to get the maximum yield, derivatisation of wax for value added products. The work involved extensive work on extraction of plant material using different solvents independently to get wax in maximum yield, polysaccharide and its purification, analysis of wax using column chromatography as well as GC-MS, derivatisation of wax using different reagents and characterization using spectroscopic techniques. Accordingly one JRF was proposed in the project for the entire duration of the project. However, due to budget constraints the JRF was not sanctioned.</p> <p>In view of manpower constraints, it was proposed during RAG held in 2013 that without manpower it is very difficult to meet the project objectives. Accordingly one Field Assistant was sanctioned. However after funds allotment and codal formalities, FA could join only in the month of October 2014. Lack of manpower severely affected the desired outputs and results. This</p>	Recommended to RPC for One year extension i.e. up to March 2016 within the sanctioned budget outlay.

			<p>necessitated its extension for a period of one year. Further, GC-MS and NMR were not available in the division upto March 2014. One GC-MS was procured in the division but still sample recording is to be done due to initial sample load. Hence spectroscopic recording could not be done due to non-availability of the instrument. In the present year efforts are also being made for recording of NMR. In this context, it is submitted that the work to be done at an outside laboratory is sometimes not satisfactory when the research components are involved.</p> <p>The budget allotment during the previous years was not as per budgetary requirement and also released after a considerable period of time which also contributed to delay in implementation of desired outputs.</p> <p>In view of above, it is kindly requested to extend the project period for one year with effect from April 2015 to carry out all the activities according to the approved objectives of the project. The balance amount of the project is proposed to be utilized in the extension period.</p>	
5	Process refinement for extraction of quality fiber	Dr. Y C Tripathi, Chemistry	The technical plan of the project involve extensive chemical evaluation and analytical activities	Recommended to RPC for One year extension i.e. up to March 2016

	<p>and optimal isolation of bioactive constituents from <i>Agave sisalana</i>. (2011-15)</p>	<p>Division</p>	<p>including, extraction and fractionation of leaf juice, separation of saponin fraction, hydrolysis of saponin, determination of total sapogenin, sugar and other water soluble parts, chromatographic analysis of aglycone and sugar fractions, derivatization of sapogenin, sequential separation of sapogenins with solvent of varying polarity, purification of target sapogenins, optimization of different pretreatment conditions for fibre extraction, separation of fibre from pretreated leaves, processing, determination of fibre yield, analysis of fibre, etc.</p> <p>The specified chemical and analytical works required sustained assistance of supporting manpower. However, the approved manpower (JRF) was appointed after a lapse of 15 month i.e. on 17th June, 2012 that largely hampered the laboratory analytical works. Also the appointed JRF resigned on 31st May, 2014 and new JRF could be engaged w.e.f. Sept., 2014.</p> <p>The budget allotment during the year 2011-12 was very meager. Further budget allotments in the years 2012-13, 2013-14 and 2014-15 were delayed and not as per the annual budgetary requirement of the project.</p> <p>In view of above, the project is proposed to be extended for a period of 12 (twelve) months w.e.f. 1st April, 2015 with provision of JRF to enable the PI to conduct the activities remained on account of the above mentioned constraints and achieve the objectives. The</p>	<p>with provision of one JRF within the sanctioned budget outlay.</p>
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			balance amount of the project is proposed to be utilized in the extension period.	
6	Phytochemical screening of selected wild edible plants for exploration of new sources of Luteolin.	Dr. Y C Tripathi, Chemistry Division	<p>The technical plan of the project comprise field tours to various parts of Uttarakhand state for collection of plant material and extensive chemical evaluation and analytical activities including Collection of edible parts of the selected species at appropriate time from various parts of Uttaraknad state, processing and sampling of collected plant material, exhaustive and successive extraction of processed plant material and determination of total extract. physicochemical evaluation and chemical profiling of different extracts, fractionation of extracts into phenolic and non-phenolic components, separation of phenolic components and quantification of total phenolics, chromatography of phenolic parts, quantitative estimations of TPC, antioxidant assay, etc.</p> <p>The specified chemical and analytical works required sustained assistance of supporting manpower. However, the approved manpower (JRF) was appointed after a lapse of about 18 months i.e. in September, 2012 that largely hampered the field and laboratory analytical works.</p> <p>The budget allotment during the year 2011-12 was very meager. Further budget allotments in the years 2012-13, 2013-14 and 2014-15 were delayed and not as per the annual</p>	Recommended to RPC for One year extension i.e. up to March 2016 with provision of one JRF within the sanctioned budget outlay.

			<p>budgetary requirement of the project.</p> <p>In view of the above, the project is proposed to be extended for a period of 12 (twelve) months w.e.f. 1st April, 2015 with provision of JRF to enable the PI to carry out the activities remained on account of the above mentioned constraints and achieve the objectives. The balance amount of the approved project budget is proposed to be utilized in the extension period.</p>	
7	Development of composites of lops and tops of <i>Melia composite</i> . (2012-15)	Shri. D P Khali, Forest Products Division	<p>The project is behind from its schedule due to lake of fund allotment and needs extension for next 1 year without any additional financial requirements. The total Rs. 8.1 lakhs budget was sanctioned for the project and till date approximately total Rs 3.97 lakhs expenditure was incurred in the project.</p>	Recommended to RPC for One year extension i.e. up to March 2016 within the sanctioned budget outlay.
8	To develop Medium Density Fiber Board from lops and tops of poplar. (2012-15)	Ms Ismita Nautiyal, Forest Products Division	<p>Trial has to be carried out for optimization of process parameters for medium density fiber board.</p> <p>An extension for next 1 year without any additional financial requirements is requested.</p>	Recommended to RPC for One year extension i.e. up to March 2016 within the sanctioned budget outlay.
9	Study on the performance of treated timbers (ZiBOC, CCB & CCA) and their natural durability in cooling tower. (2010-15)	Dr. Sadhna Tripathi, Head, Forest Products Division	<p>The study components involved are laboratory and industrial trials. Lab trials are already completed and inference drawn, while industrial cooling tower observations are recorded upto two years only. Last observation is to be recorded in July 2015 to conclude the study. Hence, one year no cost extension (April 2015 to March 2016) is</p>	Recommended to RPC for One year extension i.e. up to March 2016 within the sanctioned budget outlay.

			requested.	
10	Study on status of Agroforestry Systems existing in Haryana, Punjab, and Uttarakhand & North-West Uttar Pradesh. (2012-15)	Sandeep Kujur, Head, Extension Division	<p>The survey work under the project, in Uttarakhand, Haryana & partial part of North- West Uttar Pradesh will be completed by 31st March,2015. The survey work of Punjab & three districts of North-Western Uttar Pradesh could not completed by March, 2015 due to some unavoidable circumstances, the work load was enhanced from 10 to 12 villages from each district of each state and permission for only one Field Assistant was awarded instead of two Field Assistant.</p> <p>Therefore, it is requested that the time period of above ongoing project may be extended upto 31st March, 2016 for the completion report of Status of Agroforestry in Haryana, Punjab, Uttarakhand & North-West Uttar Pradesh. The work will be completed within the approved budget of the project.</p>	Recommended to RPC for One year extension i.e. up to March 2016 within the sanctioned budget outlay.
11.	Assessment of Ecosystem Services Imparted by Forest of Uttarakhand. (2012-17)	Dr. Parmanand Kumar, Scientist-B, CC & FI Division	<p>The project objectives as well as concept with methodology were modified by suggestions given by expert of forest hydrology during Asia Pacific Workshop on Forest Hydrology. This project has been approved during year 2012 and likely date of start was April, 2012, but it was not started at that time due to lack of subject matter specialist. Therefore, this project is being continuing since April, 2014 after joining of the scientist B (Hydrology). It is requested to revise the project within the already sanctioned budget outlay of Rs 69.74 lakh and to further enhance the</p>	Recommended to RPC for revision of the project within the already sanctioned budget outlay of Rs 69.74 lakh and further enhancement of the project period till 2019, instead of present sanctioned period 2012-2017

			project period till 2019, instead of present sanctioned period 2012-2017	
12	Process Based Carbon sequestration study (April, 2012 – March, 2017)	Dr. Hukum Singh	<p>The micrometeorological observation was observed in the year 2012. The other parameter for subsequent years in this project could not be completed as per the expectation because of the delayed fund availability and also delayed purchasing of equipment due to receive of insufficient/not-as-per-requirement quotations. Only one instrument “Portable Photosynthesis System” was purchased under this project and is being used in other ongoing projects of the CC&FI Division as well as Institute and also being used by scholars of the FRI.</p> <p>Now, the PI of this project has got the broader study on “Carbon, water and energy dynamics in Himalayan chir pine forest” funded by DST. On the recommendation of RAG 2012, the PI proposed the project to DST with broad objectives focused on carbon, water and energy incorporating initial objectives of this project.</p> <p>Due to these reasons, on request of the PI, the RAG suggested to close this ongoing project and continue this study in DST funded project.</p>	Recommended to RPC for closure of the project. The RAG asked the PI to submit project closure report. The PI has submitted Project Closure Report to GCR, FRI and the same is under perusal.