

वार्षिक अनुसंधान प्रतिवेदन
Annual Research Report
2017-2018



State Forest Research Institute, Jabalpur
राज्य वन अनुसंधान संस्थान, जबलपुर



वार्षिक अनुसंधान प्रतिवेदन *Annual Research Report*

2017 - 2018

With best compliments from :
Director
SFRI, Jabalpur



STATE FOREST RESEARCH INSTITUTE

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Jabalpur - 482 008 (M.P.)



ANNUAL RESEARCH REPORT

2017 - 2018

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This report contains semi-processed data which will be on the basis of scientific publications in future. Therefore, the data here-in may not be used without the permission of Director, SFRI, Jabalpur.

FROM THE DIRECTOR'S DESK

Forests today are under tremendous anthropogenic pressure both in terms of protection and production, which requires strict conservation measures for productive and healthy forests for future. The loss of forests leads to global warming, climate change, loss of biodiversity, soil degradation and availability of potable water. Forest managers and researchers engaged in dealing with forests and forestry research must address to these challenges. Research with adequate information, serious thinking, extensive deliberations and experimentation can address to these problems.



The institute with its limited resources is providing scientific interventions by taking up research projects of applied and adaptable nature in meeting the challenges and addressing the problems of sustainable forest management. Keeping with the applied and adaptive research mission of the institute, efforts were made to transfer the technologies evolved through research from lab to land. The awareness and exposure trainings for newly recruited forest rangers, forest guards, school and college students are also being organized to promote extension of research programmes. To extend research technologies developed by the institute, training cum workshops were organized in various forest divisions.

The institute achieved the objectives of Annual Action Plan for the year 2017-18 by undertaking 48 research projects. During the year 2017-18, 12 research projects were completed, 34 research projects were continued, 2 new projects were initiated and 14 regular activities were carried out. During this year, 25 research papers were published in various journals and 34 papers were presented in various seminars and workshops, 6 papers were published in edited books/ souvenirs by the scientists of the institute and 26 technical bulletins were published. The institute published the Annual Research Report, Quarterly journals 'Vaniki Sandesh' and 'Journal of Tropical Forestry', marketing information newsletter 'Vandhan' for dissemination of research knowledge and transfer of technology at the field level based on the findings of completed research projects.

The institute organized the "8th Kamta Prasad Sagreiya Memorial lecture on "Who Own the World's Forests and Why it is Important : Global Tenure Trends and

Imperatives with Special Reference to India" by Shri Arvind Khare, Senior Director, Rights and Resources Initiatives, Washington D.C. This event was actively attended by senior forestry professionals, academicians, researchers and ended with fruitful discussion.

The institute has also initiated coordination with various Research and Extension Circles of M.P. Forest Department located in various agro climatic zones of the state. Scientist and Senior Research Officers of the institute regularly visits the nurseries and plantation areas of different Research and Extension Circles to provide technical guidance and to disseminate research technologies to the field foresters.

The continued support and guidance provided by the honorable members of the Board of Governors and the Research Advisory Committee of the institute is also gratefully acknowledged, without which our efforts to achieve the desired goals would not have been possible. The team spirit, dedicated and sincere efforts of the forest officers, scientists and the staff of the institute is commendable.

It gives me a pleasure to publish this Annual Research Report of the institute and I hope that the information provided in the report will be useful to all concerned with the forestry sector. We look forward to receive comments and suggestions to improve our service to the stakeholders as well as the whole forestry fraternity of the state and nation.

Director

1. THE INSTITUTE

1.1 INTRODUCTION

State Forest Research Institute, Jabalpur (SFRI) came into existence on 27th June, 1963 for the scientific development of forestry sector in the state of Madhya Pradesh following the recommendations of tenth Silvicultural Conference held at Dehradun in 1961. It was granted autonomy on 29th October, 1994 and was registered on 2nd August, 1995 as a society under M.P. Societies Registration Act 1973. Over the years the institute has developed as an educational, training, research and consultancy organization at the state and national level and is carrying out adaptive and applied research programmes. The research programmes are focused on tropical forestry, environment, wildlife, agro forestry, biotechnology and biodiversity conservation. The vision of SFRI is to function as nodal centre of research in forestry and to provide scientific support to the state and its people on matters related to forestry, wildlife and climate change with particular emphasis on conservation, sustainable utilization and scientific management of natural resources. The institute conducts multidisciplinary forestry research and provides technical advice to the practical problems that are encountered by the field foresters. It also disseminates research findings through training, education, seminars, workshops, participation in public fairs and consultancy services. Technical bulletins, series of pamphlets, brochures and two journals namely 'Vaniki Sandesh' and 'Van-Dhan Vyapar' are published quarterly. 'Vaniki Sandesh' contains papers and articles of practical importance and also on research findings of the projects of the institute which can be applied and adopted in the field. The Journal of Tropical Forestry is also published from the institute campus by the Society for Tropical Forestry Scientists comprising of senior forest officers and scientists from the state and all over the country. The Journal carries technical research papers, articles and research recommendations of forestry projects undertaken by various organizations.

National Medicinal Plants Board, Ministry of AYUSH, Govt. of India has established its six regional centres in different parts of the country to coordinate the activities of the medicinal plant sector. For the Central Region comprising of the two states of Madhya Pradesh and Chhattisgarh, this centre (RCFC) has been established in State Forest Research Institute, Jabalpur. This RCFC will act as one stop centre for the growers of Medicinal plants (MPs), for supporting conservation, development, marketing and cultivation of medicinal plants and providing handholding support to stakeholders in terms of technology dissemination and also for establishing primary processing facilities, etc. besides undertaking identified research relevant to the area concerned as and when assigned. The office of the RCFC : Central Region is located in the administrative building of the State Forest Research Institute, Jabalpur. This centre works under the administration, guidance and supervision of Director, SFRI. The Regional Director of RCFC will have over all control over the execution of RCFC activities. A coordination committee has been constituted comprising of 14 members headed by Director, SFRI Jabalpur to regularly monitor and review the implementation of action plan of RCFC. A website of the centre has also been launched to depict the activities of the centre and its future plans.

The institute is located at Jabalpur in a lush green campus spread over a sprawling area of about 102 ha. The region of Jabalpur has close proximity to two major forest types, namely; sal and teak forests of Madhya Pradesh and four protected areas (PA's) namely; Kanha,

Bandhavgarh, Pench and Satpuda. This unique location rendered it suitable for the setting this institute here. It houses a rich infrastructure of various research and experimental plots, research nursery, ornamental nursery, clonal nursery, medicinal and aromatic plants nursery, rose garden, seasonal garden, gene-bank, glass-house, mist-chambers, shade-net houses, poly houses, botanical garden, bambusetum, tissue culture, fully renovated state of art EIA, soil and seed testing laboratories along with administrative block, conference halls, lecture room, museum, herbarium, auditorium, library and documentation centre. The institute is now equipped with a mobile soil testing laboratory. The institute has guest house, officers' rest house, etc. and also provides residential accommodation to its employees inside the campus.

1.2 MISSION AND GOALS

Mission

The institute's mission is to focus its efforts on adaptive and applied research programmes for the conservation and development of forests and forestry sector in the state of Madhya Pradesh.

It endeavours to focus its activities as per the requirement of the forest development community and is engaged in need based research. The institute tries to acquire knowledge about sectoral problems in forest management and means to overcome them and disseminate the same simultaneously to the stakeholders.

Goals

Ongoing research aims at :

1. Conservation of forests and forest resources - soil, water and floral and faunal diversity.
2. Enhancement of productivity of natural forests and plantations.
3. Efficient and sustainable utilization of forest resources and forest products – timber and NTFPs and expansion of tree cover.
4. Sustainable management of forests involving forest dependent communities and people's participation
5. Mass production of high fruit yielding forest tree species through biotechnological approaches.
6. Preparation of inventory and biodiversity assessment in Madhya Pradesh.
7. Monitoring and evaluation of wildlife and their habitats.
8. Documentation of existing agro-forestry systems for different agro-climatic conditions.
9. Climate change and its impact on livelihood rural communities.

1.3 THRUST AREAS

1. Collection of quality seeds, its certification and disposal.
2. Production of quality planting material using biotechnological tools.
3. Development of micro and macro-propagation techniques.
4. Vegetational surveys to assess bio-diversity status and to identify rare and threatened species.

5. Germplasm collection, evaluation and conservation.
6. Cultivation, sustainable harvesting, processing, storage, certification and market information service for medicinal plants.
7. Collection of growth data and preparation of volume and yield tables.
8. Ecological studies and environmental impact assessment and preparation of environmental management plans.
9. Strengthening of *ex-situ* gene bank of medicinal and aromatic plants.
10. Development of botanical garden for conservation of rare, endangered, threatened and endemic plants of MP for mass multiplication.
11. Vegetation and edaphic studies in different preservation plots, established in various forest types of MP.
12. Conservation of rare, endangered and threatened (RET) species in natural condition.
13. Study on ecology & conservation of wildlife including herbivores, carnivores & avifauna of the state.
14. Protection, maintenance and successional study in terms of growth, biomass and carbon sequestration in preservation plots laid in different forest types of Madhya Pradesh.
15. Modernization and digitalization of existing forest herbarium of State Forest Research Institute, Jabalpur (M.P.).
16. Development, implementation of sustainable harvesting technologies and determination of sustainable harvesting limits of commercially important NTFPs in tribal dominated tropical forests.
17. Impact assessment of agro-forestry technologies on natural resource management and livelihoods.
18. Sustainable harvesting and primary processing of gums and gum oleo resin.
19. Screening and management of diseases of some selected important medicinal & aromatic plants.
20. Management intervention in wildlife habitat improvement.
21. Preparation of form factor table for important miscellaneous timber species of M.P.
22. Soil analysis of various forest plantation and providing mobile soil testing services.
23. Training on techniques of protection of sal forests affected by sal borer attack.
24. Knowledge upgradation and skill development of field foresters and forest dependent communities through training and extension.

1.4 MAJOR RESEARCH CONTRIBUTIONS

The institute undertakes need-based forestry research programmes of the state and plays a dynamic role to address various forestry management problems. Some of the important research contributions during the year are enumerated below:

1. Selection of suitable species on the basis of growth performance of established plantation and development of nursery techniques to increase green cover under Green India Mission (GIM) in western Madhya Pradesh.
2. Preparation of detailed project report of wildlife habitat improvement in the adjoining area of Sardar Sarovar Project, Madhya Pradesh.
3. Development of high-tech nursery and preparation of quality planting material of RET species for their restoration in natural forest of rural and urban areas through plantation.
4. Development of raised mother-bed technology and mass multiplication of clonal plants of eucalyptus in SFRI, Jabalpur.
5. Standardization of seed and nursery techniques for production of quality planting stock of important indigenous species (*Terminalia chebula*, *Terminalia bellirica*, *Adina cordifolia*, *Sapindus trifoliatus* & *Adunsonia digitata*).
6. The scheduled tribes and other traditional forest dwellers (Recognition of Forest Right Act, 2006) Implementation and its impact in Madhya Pradesh.
7. Estimation of wood demand and supply in M.P.
8. Role of Management Interventions in Wildlife Habitat Improvement on abandoned sites of Satpura Tiger Reserve, Madhya Pradesh.
9. Study of comparison of soil cultural produces in existing bamboo (*D. stictus*) plantation project.
10. Preparation of volume and yield tables of several species.
11. Standardization of protocols for micro propagation of endangered medicinal plant species of central India and their cryogenic preservation for future multiplication.
12. Assessment of sal regeneration in borer affected sal forests of Madhya Pradesh.
13. Germplasm evaluation of important medicinal plants through chemo-profiling technique.
14. Development of nursery techniques and models for plantation of rare endangered and threatened (RET) species in natural condition.
15. Studies on photosynthetic efficiency, biomass production and carbon sequestration of bamboo in plantation forests.
16. Evaluation of germplasm of Safed Musali (*Chlorophytum* sp.) and Satawar (*Asparagus* sp.) for bio-active compounds.
17. Documentation of traditional knowledge of Pahadi Korba Tribe of Chhattisgarh about the conservation, harvesting & utilization of medicinal plants.
18. Forensic DNA Profiling and timber tracing for origin of wood with special reference to *Tectona grandis* (Teak) and *Pterocarpus marsupium* (Beeja).
19. Clonal multiplication of *Dendrocalamus asper* (Thailand bamboo) through micropropagation technique.

20. Cultivation and Production of plants of Wild Medicinal tree species.
21. Production of quality planting stock of important ret and wild medicinal tree species through application of advance technology.
22. Sequestered carbon in roadside plantation: an assessment of potential contribution in climate mitigation in Jabalpur Smart City.
23. Monitoring Re-introduced Tiger (*Panthera tigris*) in Nauradehi Wildlife Sanctuary.
24. Study of Tiger Presence and their Dispersal Movements In Ratapani-Kheoni Landscape of Vindhyan Range.

1.5 ADMINISTRATION

The administration of the State Forest Research Institute Society is governed by a Board of Governors, which is constituted by the following members:

1.	Honorable Minister of Forests, Forest Department, Govt. of M.P., Bhopal	Chairman
2.	PCCF & HoFF, Madhya Pradesh, Bhopal	Vice Chairman
3.	Addl. Chief Secretary, Dept. of Forests, Govt. of M.P., Bhopal	Member
4.	Addl. Chief Secretary / Principal Secretary, Dept. of Finance, Govt. of M.P., Bhopal	Member
5.	PCCF (Wildlife) M.P., Bhopal	Member
6.	Managing Director, M.P. Forest Development Corporation, Bhopal	Member
7.	Managing Director, M.P. Minor Forest Produce (Trade and Development) Federation, Bhopal	Member
8.	Director General, Indian Council of Forestry Research & Education, Dehradun	Member
9.	Director, Wildlife Institute of India, Dehradun	Member
10.	PCCF (Working Plan), M.P., Bhopal	Member
11.	PCCF/APCCF (R/E & Lok Vaniki) M.P., Bhopal	Member
12.	Director General, M.P. Council of Science & Technology, Bhopal	Member
13.	Nominated Emeritus Scientist	Member (Nominated by Govt. of M.P.)
14.	Nominated Emeritus Scientist	Member (Nominated by Govt. of M.P.)
15.	Director, State Forest Research Institute, Jabalpur	Member Secretary & Treasurer

RESEARCH ADVISORY COMMITTEE

The Research Advisory Committee of the institute comprising of eminent forest officers and stakeholders examines and approves the project proposals of the institute, evaluates their progress and results and also monitors the quality of research. The committee comprises of the following members:

1.	Principal Chief Conservator of Forests & HoFF, M.P.	Chairman
2.	PCCF (Wildlife), M.P.	Member
3.	Managing Director, MP MFP Federation, Bhopal	Member
4.	Managing Director, MPRVVN, Bhopal	Member
5.	PCCF (Research and Training), M.P.	Member
6.	PCCF (Production), M.P.	Member
7.	PCCF (Research / Extension and Lokvaniki), M.P.	Member
8.	PCCF (Working Plan), M.P.	Member
9.	APCCF (JFM & FDA), M.P.	Member
10.	APCCF (Research / Extension and Lokvaniki), M.P.	Member
11.	APCCF (Development), M.P.	Member
12.	Director General, MPCOST, Bhopal	Member
13.	Director, TFRI, Jabalpur	Member
14.	Director (Research), JNKVV, Jabalpur	Member
15.	CCF (Territorial nominated by PCCF & HoFF), M.P.	Member
16.	Shri Deepankar Agrawal, Jabalpur Farmer's representative nominated by Chairman BOG	Member
17.	Dr. Sushil Upadhyay, Jabalpur Member of NGO nominated by Chairman BOG	Member
18.	Director, Horticulture, Govt. of M.P.	Member
19.	Director, Veterinary and Animal Husbandry, JNKVV, Jabalpur	Member
20.	Director, SFRI, Jabalpur.	Member Secretary

1.6 ORGANIZATION

S.No	Forestry Professionals	Sanctioned	Working
1	Director (PCCF/APCCF)	1	1
2	Addl. Director (APCCF/CCF)	1	1
3	Deputy Director (CF/Dy.CF)	4	1
4	Assistant Director (ACF)	3	2
5	Forest Ranger	1	1
6	Dy. Ranger	1	0
7	Forester	8	8
8	Forest Guard	10	8
	Total	29	22
	Scientist		
1	Forest Ecology Scientist	1	0
2	Forest Genetics Specialist (Scientist-E)	1	1
3	Seed Specialist (Scientist-E)	1	1
4	Tree Improvement Specialist	1	0
5	Forest Botanist (Scientist-E)	1	1
6	Biodiversity Scientist	1	0
7	Marketing Specialist (Scientist-E)	1	1
8	Wildlife (Scientist-B)	5	0
	Total	12	4
	Technical		
1	Statistical Assistant (Sr. Research Officer)	1	1
2	Technical Assistant (Social-economics), (Sr. Research Officer)	3	1
	Technical Assistant (Contingency)		2
3	Technical Assistant (Forestry & Wildlife Research), (Sr. Research Officer)	9	7
	Technical Assistant		2
4	Technical Assistant (Consultancy/Extension), (Sr. Research Officer)	1	1
5	Technical Assistant (Library), (Sr. Research Officer)	1	1
6	Technical Assistant (Documentation) (Sr. Research Officer)	1	1
7	Technical Assistant (Computer) (Sr. Research Officer)	1	1
8	Lab Technician (Sr. Research Officer)	7	1
	Lab Incharge (Sr. Research Officer)		1
9	Lab Technician	3	1
10	Ledger Assistant (Research Officer)	3	1
	Ledger Assistant		1
11	Herbarium Assistant (Contingency)	1	1
12	Lab Assistant	3	1
13	Field Assistant	3	3
	Total	37	27

	Non-Technical		
1	Head Clerk	1	0
2	Accountant	1	1
2	Assistant Grade – II	1	1
3	Assistant Grade – III	3	3
4	Driver	5	3
5	Daftari	2	0
6	Peon/ Orderly/ Chowkidar/Mali/ Dak Runner	13	4
7	Sweeper	2	0
	Total	28	12

1.7 WORKING BRANCHES OF THE INSTITUTE

Forestry research in the institute is categorized in 12 broad areas. They are as follows :

1. Bio-diversity and Medicinal Plants
2. Forest Botany
3. Forest Ecology and Environment (EIA Cell)
4. Forest Genetics, Plant Propagation and Biotechnology
5. Forest Mensuration and Statistics
6. Silviculture
7. Seed
8. Social Economics and Marketing
9. Tree Improvement
10. Wildlife
11. Agro-Forestry
12. Climate Change Cell

These branches are supported by following three administration training & extension, library, documentation and computer branches :

1. Extension, Training and Consultancy
2. Library and Documentation
3. Computer and Information Technology

1.8 TRANSFER OF TECHNOLOGY

1. Capacity building of Forest Staff of Madhya Pradesh on Wildlife Population Monitoring Techniques.
2. Knowledge upgradation and skill development of field foresters, forest dependent communities and resource persons through lab to lab training modules.
3. Training on technical knowhow of gum tapping from *Butea monosperma* in Umaria and Tikamgarh districts to local people and frontline staff of forest department.
4. Training on biotechnology, plant propagation and tissue culture.
5. Training-cum-demonstration program in cultivation, processing and marketing of medicinal and aromatic plants.
6. Trainings for the staff of forest department in the maintenance of seed orchards and seed production areas.
7. Training on sustainable harvesting, processing, grading and storage of gums.
8. Participation in exhibitions and fairs.

2. RESEARCH ACTIVITIES

Abstract of Research Activities 2017 - 2018

S. N.	Name of the Research Branch	No. of completed projects		No. of ongoing projects		No. of newly initiated projects		No. of regular activities
		Internal Projects	External Projects	Internal Projects	External Projects	Internal Projects	External Projects	
1	2	3	4	5	6	7	8	9
1	Biodiversity and Medicinal Plants	-	-	-	5	-	-	2
2	Forest Botany	-	-	-	3	-	-	-
3	Forest Ecology and Environment	-	4	-	2	-	-	1
4	Forest Genetics, Plant Propagation and Biotechnology	1	-	-	3	-	-	1
5	Forest Mensuration & Statistics	-	1	1	1	-	1	1
6	Seed	-	1	1	2	-	1	1
7	Silviculture	-	-	-	4	-	-	1
8	Social Economics and Marketing	-	-	1	4	-	-	-
9	Tree Improvement	-	1	1	1	-	-	6
10	Wildlife	-	2	-	5	-	-	1
11	Agro-Forestry	-	2	-	-	-	-	-
	TOTAL	1	11	4	30	-	2	14

Total No. of completed projects (Coln. 3 + 4) - 12

Total No. of ongoing projects (Coln. 5 + 6 + 7 + 8) - 36

Total No. of regular activities (Coln. 9) - 14

2.1 BIODIVERSITY AND MEDICINAL PLANTS

Mandate

1. Biodiversity assessment in forest areas of Madhya Pradesh.
2. Identification of rare and threatened plant species and their *in-situ* and *ex-situ* conservation.
3. Survey of medicinal plants.
4. Mass multiplication and development of agro-techniques of commercially important medicinal plants.

Ongoing Projects

Externally Funded: Five

1. *Ex-situ* conservation of medicinally important wild tuberous/rhizomatic plants and studies on their phenology and growth.
2. वनों एवं वन रोपणीयों में लगाने वाली कीट व्याधियाँ एवं उनके निदान पर किये गये कार्यों का सरल भाषा में संकलन : मध्य प्रदेश के संदर्भ में ।
3. Development of high-tech nursery and preparation of quality planting material of RET species for their restoration in natural forest and rural/urban areas through plantations.
4. Survey, population density and quantitative assessment of medicinal plants for the sustainable development of livelihood generation in Jabalpur Forest Circle (M.P.)
5. Establishment of Regional-Cum-Facilitation: Central Region

Summary of achievements / activities & outcome of each project:

1. ***Ex-situ* conservation of medicinally important wild tuberous/rhizomatic plants and studies on their phenology and growth.**

Field survey has been conducted in different forest areas of Madhya Pradesh. From these forest areas, tuberous / rhizomatic plants has been collected. These tuberous plants have been conserved in the gene bank of SFRI. A demonstration plot of 82 species collected have been prepared and conserved in the premises of SFRI. Studies on phenology and growth performance of these species and Nutrient and anti-nutrient study of these species has been done. A technical bulletin on the importance and general information of these species has been prepared and published for field staff and local people. Report writing has been completed. Training-cum-awareness programme in various divisions of Madhya Pradesh is to be conducted to create awareness regarding these medicinally important tuberous/rhizomatic species among field staff and local people. Final report will be submitted after the completion of trainings.



Kali Musli
(*Curculigo orchoides*)



Safed Musli
(*Chlorophytum tuberosa*)



Kali Haldi
(*Curcuma caesia*)

2. वनों एवं वन रोपणियों में लगने वाली कीट व्याधियाँ एवं उनके निदान पर किये गये कार्यों का सरल भाषा में संकलन : मध्य प्रदेश के संदर्भ में ।

महत्वपूर्ण वन्य प्रजातियों पर लगने वाले कीट एवं उनके निदान की जानकारी एकत्रित की जा रही है। एकत्रित जानकारी को प्रजातिवार सरल हिन्दी भाषा में संकलित किया जायेगा जिससे वन विभाग के मैदानी अमलें को समझने में आसानी हो। कीट वैज्ञानिकों की क्षेत्रवार सूची तैयार की जायेगी जिससे क्षेत्र विशेष में उनकी सहायता ली जा सके। 63 महत्वपूर्ण वन वृक्ष प्रजातियों पर लगने वाले लगभग 240 कीट की जानकारी एकत्रित की गयी। जानकारी को सरल भाषा में परिवर्तित किया जा रहा है। प्रजातिवार पौधों पर लगने वाले कीट एवं उनके नियंत्रण के ब्रोशर बनाये जायेंगे तथा सभी प्रजातियों की संकलित पुस्तिका तैयार की जावेगी।



Gall insect



Gall insect larva



Moth of Teak Skeletonizer

3. Development of high-tech nursery and preparation of quality planting material of RET species for their restoration in natural forest and rural/urban areas through plantations.

41, 711 plants are prepared and available for plantation. 3,00,000 poly bags are ready for planting. Total 5,00,000 plants will be prepared upto Dec. 2018. Infrastructure will be developed for modernization of the nursery. Following structures will be constructed: Vermicompost pit, Nadep pit, semi automatic Mist Chamber (small), path-way, toilets for visitors and solar and semi automated irrigation system. Low cost nursery technique of Salai (*Boswellia serrata*) and Kullu (*Sterculia urens*) is developed for mass multiplication.



Multiplication of Salai & Kullu



Extension Bulletin

4. Survey, population density and quantitative assessment of medicinal plants for sustainable development of livelihood generation in Jabalpur Forest Circle (M.P.)

Working Plans of Jabalpur, West Mandla and Katni have been referred to collect the information about the available resources in the study areas. The detailed

information of previous study on medicinal plants have been collected from 21 Forests Ranges of Jabalpur, West Mandla and Katni Forest Divisions. A training manual has been prepared and distributed during the training program in 21 ranges of 3 forest divisions (Katni, West Mandla and Jabalpur) of Jabalpur Forest Circle. 13 training programs have been organized in 21 ranges of 3 forest divisions (Katni, West Mandla and Jabalpur) of Jabalpur Forest Circle. Field survey and lying of sample plots and data collection work is under progress in all ranges of 3 forest divisions of Jabalpur forest circle. Data collection and computation work is under process.



Training Program at Kalpi Range



Field Demonstration in Sample Plot

5. Establishment of Regional-Cum-Facilitation: Central Region

Action Plan has been prepared and submitted for its final approval to the funding agency. Project staff have been selected and appointed. Setting of RCFC office is under progress. A two days launch workshop will be planned to organize in the month of April 2018 for the identification of potential areas, medicinal plants rich area, identification of key species and interaction with various stakeholders of medicinal plants. Training manual preparation for the cultivation of medicinal plants is under progress.

Regular Activities : Two

1. Development of raised mother bed technology and mass multiplication of clonal plants of eucalyptus in SFRI, Jabalpur.
2. औषधीय पौधों के जीन बैंक एवं रोपणी का प्रबंधन एवं विकास ।

Summary of achievements of Regular Activities :

1. Development of raised mother bed technology and mass multiplication of clonal plants of eucalyptus in SFRI, Jabalpur

Infrastructure has been developed for mother beds. Plants of different clones and hybrid species have been procured and mother plant area is developed. 50,000 plants will be prepared up to June – July 2018. As per declaration of Chief Minister of Madhya Pradesh Eucalyptus plantation was restricted in Narmada catchment areas of M.P. Hence multiplication process was stopped. After the discussion with senior officers during their visit to SFRI, multiplication of *Eucalyptus* was initiated again for farmers only. Clonal propagation will be restarted. In future similar techniques will be used for preparation of some RET species.



Mother plants of Eucalyptus Clones

2. औषधीय पौधों के जीन बैंक एवं रोपणी का प्रबंधन एवं विकास:



Multiplication of rare endangered and threatened medicinal plant species in the Gene Bank

Other significant achievements :

1. Certificate of excellence has been awarded by Honorable Forest Minister, Gov. of M.P. Dr. Gauri Shankar Shejwar to Dr. Uday Homkar and Dr. S.K. Masih, Senior Research Officers of Biodiversity and Medicinal Plants Branch SFRI, Jabalpur on 24th Feb. 2018.
2. Inauguration of SFRI Museum, Van Vithika.

2.2 FOREST BOTANY

Mandate

1. Maintenance and development of botanical garden.
2. Maintenance and development of forest herbarium.
3. Documentation and inventorization of plant diversity in natural forests of Madhya Pradesh.
4. Phenological studies of forest species.
5. Carbon sequestration and climate change.

Ongoing Projects

Externally Funded: Three

1. Protection, maintenance and successional study in terms of growth, biomass and carbon sequestration in preservation plots laid in different forest types of Madhya Pradesh.

2. Sustainable livelihood based management plan for Kuno-Palpur Wildlife Sanctuary of Madhya Pradesh.
3. Studies on photosynthetic efficiency, biomass production and carbon sequestration of bamboo in plantation forests.

Summary of achievements / activities & outcome of each project:

1. Protection, maintenance and successional study in terms of growth, biomass and carbon sequestration in preservation plots laid in different forest types of Madhya Pradesh.

Barbed wire fencing completed in all the preservation plots situated in different forest divisions. Survey, demarcation and numbering of trees in all preservation plots were completed during first & second measurement. 39 plots were surveyed for demarcation, numbering and second growth measurement. Growth data of all preservation plots were computerized. Analysis work for carbon pool in four preservation plots was completed. Carbon pool for remaining preservation plots in different forest types is in progress. Carbon pool for four preservation plots were estimated as 157.43, 72.81, 40.22 and 52.11 Mg ha⁻¹ in Narsinghpur, South Shahdol Forest Divisions and Satpura Tiger Reserve (Compt. No. 298 and 302), respectively. Above ground carbon, below ground carbon and total carbon were also estimated for aforesaid preservation plots. Report writing is in progress. Outcome of this project will provide carbon sequestration and carbon flux of different species in different forest types of Madhya Pradesh and will be helpful for carbon management in different forest types.



Numbering of trees in Narsinghpur (Gadarwara) Forest Division Preservation Plot



Measuring weight of broken tree



Collection of soil samples from preservation plots



Measurement of biomass of regenerated crop

2. Sustainable livelihood based management plan for Kuno-Palpur Wildlife Sanctuary of Madhya Pradesh.

For quantitative assessment of biological resource and its utilization pattern, the maps of PA areas for different impact zones starting from the central point of the sanctuary considering the radial distances viz., 0-1 km, 1-3 km, 3-5 km, 5-7 km and 7-10 km were collected. Primary survey work completed, maps, WII report and A. Khudsar report collected along with compartment details of core and buffer zones. Seasonal survey for trees, shrubs, herbs and ground flora for floristic study, herbarium and soil samples collected from 2 ranges of core zone namely East Palpur range and West Palpur range, and 6 ranges in buffer zones namely East Moravan, West Moravan, South Seoni, North Seoni, East Agra and West Agra. Data base on faunal diversity, Socio economic data and MFP collection from different villages were collected. Sustainable and scientific utilization of 18 important NTFPs were developed in the region. Report writing is in progress. The outcome of project will develop quantitative assessment of biological resource and its utilization pattern. The database would be of vital importance for habitat management of wildlife of protected areas selected for study.



Plot laid for ground flora study



Plot laid for trees vegetation study



Unsystematic harvesting of Salai gum



Human habitation inside sanctuary

3. Studies on photosynthetic efficiency, biomass production and carbon sequestration of bamboo in plantation forests.

Revised methodology for data collection was completed & data were collected accordingly. Data of different aged bamboo plantations from Satpura plateau (15 age series) and Chhattisgarh plain (12 age series) agro climatic zones were collected and

entered in computer. Soil samples have been collected from bamboo plantations of different age from Kundam range, Jabalpur Forest Division for microbial and physico-chemical properties. Information regarding different aged bamboo plantations was collected from other agro climatic zones through official correspondence. The outcome of project will provide rate of carbon sequestration of bamboos in different age series that would be useful to prove their efficiency for enhancing the species for environmental amelioration, socioeconomic and livelihood benefits of various stakeholders and finally to improve the ecological balance and to enhance the national economy.



Collection and measurement of Soil samples



Digging of pits for collection of bulk density from bamboo plantations



Data recording of bamboo clump



Weighing of karla culms

Other significant achievements during the years

1. Training and demonstration of Herbarium preparation and its management biodiversity conservation in botanical garden and carbon estimation in preservation plots has been given to trainees of forest department (IFS probationers, trainee foresters, rangers etc.) and students of colleges and universities.
2. Identification of 485 plant specimens for Ph.D. students of RD University, Home Science College, Science College, St. Aloysius College and Shri Gurunanak Mahila Mahavidyalaya, Jabalpur with provision of certificates.

2.3 FOREST ECOLOGY AND ENVIRONMENT (EIA CELL)

Mandate

1. Ecological studies in natural forests of M.P
2. Environmental Impact Assessment
3. Sustainable Forest Management

Completed Projects

Externally Funded : Four

1. Development of technology for conservation and sustainable management of wild medicinal plants and NTFPs through community participation in Shahdol Forest Circle of Madhya Pradesh.
2. Up-gradation of Laboratory under EIA/EMP cell for water, air and noise pollution analysis in environmental impact assessment projects.
3. मध्यप्रदेश स्टेट माइनिंग कारपोरेशन लि. द्वारा विभिन्न जिलों (Hoshangabad, Raisen, Bhind, Datia & Khargone) में रेत खनन क्लस्टर्स के अन्तर्गत प्रस्तावित रेत खदानों का पर्यावरण प्रभाव मुल्यांकन एवं पर्यावरणीय प्रभाव प्रबंधन।
4. National Seminar on "Climate change and role of communities for adaptation and mitigation".

Summary of achievements / activities & outcome of each project:

1. **Development of technology for conservation and sustainable management of wild medicinal plants and NTFPs through community participation in Shahdol forest circle of Madhya Pradesh.**
 - Determination of sustainable harvesting limits (*in-situ*) for the six selected species i.e. Kalihari (61%), Bhuinaonla (67%), Shankhpushpi (65%), Kalmegh (47%), Harra (70%) and Achar (80%).
 - Participatory ecosystem approach through training/workshop programmes and field demonstration was found to be quite effective to develop skills and capabilities of local user's communities for sustainable management and conservation of forest resources.
 - Final report submitted to funding agency.
2. **Up-gradation of Laboratory under EIA/EMP cell for water, air and noise pollution analysis in environmental impact assessment projects.**
 - Renovation of EIA, Seed, Soil and Wildlife lab completed.
 - Calibration of equipment (SLM) by authorized NABL Laboratory is completed.
 - EIA equipments procured for water and air analysis are:
 - i. Electrical conductivity meter
 - ii. Multiparameter photometer (HI 83200)
 - iii. Electronic balance
 - iv. Hygrometer
 - v. Thermometer
 - vi. EC, TDS, NaCl, Resistivity,
 - vii. Temperature Meter (HI 98192)
 - viii. Turbidity Meter (HI 93102)
 - ix. Gas Sampler for Air quality monitoring.



EIA Lab of the Institute

3. मध्यप्रदेश स्टेट माइनिंग कारपोरेशन लि. द्वारा विभिन्न जिलों (Hoshangabad, Raisen, Bhind, Datia & Khargone) में रेत खनन क्लस्टर्स के अन्तर्गत प्रस्तावित रेत खदानों का पर्यावरण प्रभाव मुल्यांकन एवं पर्यावरणीय प्रभाव प्रबंधन।

- 45 रेत खदानों में से 40 की पर्यावरण स्वीकृति प्राप्त हो चुकी है।
- 3 रेत खदानों (ग्वाड़ीकला-1, ग्वाड़ीकला-2, मरोड़ा-2) की पर्यावरण स्वीकृति जारी होने हेतु SEAC/SEIAA में लंबित हैं।
- शेष 2 रेत खदानों (भसुण्डा-ब, जलूद-अ) की पर्यावरण स्वीकृति अनुमोदित है, जिसमें Query होने के कारण वांछित जानकारी चाही गई है।
- 12 Consent To Operate (CTO) order issued by MPPCB.
- 13 online applications applied for getting CTO.
- पत्रों द्वारा MPSMCL & MPPCB Bhopal को राशि विमुक्त हेतु अनुरोध किया गया है।



EIA for Soil



EIA for Water



EIA for Air



EIA for Noise



Representative of Collector along with Officer's of MPPCB and Mining Officer, Raisen addressing the participants of Public hearing in Raisen (M.P.)

4. National Seminar on “Climate change and role of communities for adaptation and mitigation”.

- Preparation & distribution of various tasks during the National Seminar.
- National Seminar organized at SFRI on 18-19 Sept, 2017.
- Recommendation, proceedings & utilization certificate submitted to MPCDMA Bhopal.



Technical session and participants of the National Seminar

Ongoing Projects

Externally Funded: Two

1. Ecological studies on grasslands of Bandhawgarh Tiger Reserve with special reference to Wildlife Management.
2. Study of sal regeneration status in borer affected areas.

Summary of achievements / activities & outcome of each project:

1. Ecological studies on grasslands of Bandhawgarh Tiger Reserve with special reference to Wildlife Management.

- Inventory & ecological studies of 38 grasslands in 5 ranges viz; Tala, Magdhi, Kallwah, Khitauli & Panpatha.
- Specimens of 73 grasses, 18 sedges, 82 fodder & weeds, 18 seedlings species and 26 species of legume were recorded during the study period.

- 32 Treatments (16 in enclosed and 16 in the grazing open plots) have been completed of four years in the Bathan grassland of Tala range and Kudrakherwah of Kallwah range in three replications.
- Utility percent of 38 grassland and evidences of ungulates were assessed in all five ranges.
- Structural and functional attributes of 38 grasslands indicative that almost all grasslands are undergoing in different seral stages of succession.
- Final report writing is in progress.
- Study of sal regeneration status in borer affected areas.



Experimental plot



Inventory of grasses in various grasslands

Experimental fire treatment in the selected plots

2. Study of sal regeneration status in borer affected areas :

- Study the structure & composition of sal forest, and present status of regeneration in heart wood borer affected forests, impact of canopy gaps on regeneration of affected forests.
- This study support strategies for the establishment of sal regeneration.
- Study conducted to three sites Kanha Tiger Reserve, Mandla, Satpuda Tiger Reserve, Hoshangabad and Phen Wildlife Sanctuary.
- Literature survey/collection of secondary data is completed.
- Field survey and data analysis of both sites is in progress.



Field Survey Work in Kanha Tiger Reserve, Mandla Sal Borer affected Area



Field Survey Work in Phen Sanctuary, Mandla Sal Borer affected Area



Field Survey Work in Satpuda Tiger Reserve, Hoshangabad Sal Borer affected Area

Regular Activity : One

1. Maintenance and analysis of indoor and outdoor samples in Environmental Impact Assessment (EIA) laboratory, SFRI, Jabalpur (M.P.)

Summary of achievements of Regular Activity:

1. Maintenance and analysis of indoor and outdoor samples in Environmental Impact Assessment (EIA) laboratory, SFRI, Jabalpur (M.P.).

Activities carried out during the year:

- Collected & analyzed surface water samples from four directions, 12 lakes/ponds and 3 rivers of Jabalpur. Also collected drinking water samples from 3 Treatment

Plants, 3 sites of water supply and 4 for ground water. Analysis of physico-chemical and biological parameters for winter season has been completed.

- Air and noise quality readings have been collected & analyzed from 10 sites- 3 silent zones, 3 industrial area and 4 public transportation zone.

22 Parameters of surface water analysis & 33 Parameters for drinking water analysis are, pH, EC, TDS, BOD, COD, DO, Aluminum, Ammonia, Fluoride, Silver, Manganese, Calcium, Chromium, Molybdenum, Nickel, Zinc, Iodine etc. All evaluated values of water, air and noise quality have been compared with acceptable limits given by various Standard guidelines.



Narmada-Gwarighat



Hiran-Katangi



Ranital



Ranjhi Treatment Plant



Madan Mahal Station



Metro Bus Stand



Medical Hospital



Ramnagra Treatment Plant

Analysis of water samples in different locations of Jabalpur

अन्य गतिविधियाँ:

अनुसंधान एवं विस्तार वृत्त जबलपुर में संचालित लघु अनुसंधान कार्यो पर तकनीकी मार्गदर्शन हेतु संचालित परियोजना टॉल ट्री (बड़े पौधों) के वृद्धि में विभिन्न कारकों का अध्ययन: प्रजाति-नीम (स्थल – शहरी रोपणी, जबलपुर) एक प्रजाति नीम के लिये प्रस्तावित हैं, तथा विभिन्न क्षेत्रों के बीज से पौधा तैयारी का तुलनात्मक प्रभाव जानने के लिए मालवा, निमाड़, ग्वालियर, महाकौशल (जबलपुर) एवं विन्ध्यक्षेत्र (सतना, रीवा) क्षेत्रों से नीम बीज एकत्र किया जाएगा तथा नीम बीज बुआई कर क्षेत्रों का तुलनात्मक अध्ययन किया जाएगा। प्रत्येक अनुसंधान कार्य में पौधों का रखरखाव एवं उपचार के लिये विभिन्न आयामों पर सतत अध्ययन अनुसंधान कार्य किये जावेंगे।

अनुसंधान एवं विस्तार वृत्त जबलपुर में संचालित लघु अनुसंधान कार्यो पर तकनीकी मार्गदर्शन हेतु शहरी रोपणी जबलपुर,परियट, रोपणी जबलपुर, दरौली रोपणी सिहोरा सरसवाही रोपणी कटनी, कटरा रोपणी मण्डला, अमेरा रोपणी डिण्डौरी, रोपणियो का भ्रमण किया गया तथा परियोजना कार्य संबंधित विस्तृत जानकारी प्राप्त की गयी। रोपणी में पौधा तैयारी हेतु कौन सा उपचार किया जाना चाहिये, रोपणी में पौधों में होने वाली वृद्धि पर विभिन्न प्रकार के उपचारों का क्या प्रभाव पड़ता है तथा समय-समय पर विभिन्न उपचारों के अनुसार पौधो की वृद्धि सम्बधित आकड़े एकत्रित करने हेतु रोपणियों का भ्रमण किया जाएगा।



रोपणी भ्रमण



नीम प्रक्षेत्र मुरैना

2.4 FOREST GENETICS, PLANT PROPAGATION AND BIOTECHNOLOGY

Mandate

1. Standardization of propagation protocol using biotechnological applications of tree & medicinal plant species.
2. Production of quality planting material by using biotechnological tools.
3. Germplasm evaluation of medicinal plants through chemoprofiling.
4. Cryopreservation of rare and endangered medicinal plants.
5. Genetic diversity assessment of different species using molecular marker techniques.
6. Species specific identification through molecular marker technique for plant and wild animals.
7. Consultancy /training in the field of plant tissue culture and biotechnology.

Completed Project

Internally Funded: One

1. Clonal multiplication of *Dendrocalamus asper* (Thailand bamboo) through micropropagation technique.

Summary of achievements/ activities & outcome of each project:

1. **Clonal multiplication of *Dendrocalamus asper* (Thailand bamboo) through micropropagation technique.**

Dendrocalamus asper is a commercially important bamboo species, however due to its prolonged seeding cycle its propagation through seed is difficult therefore it is propagated through nodal explants by using micropropagation technique.

When MS culture medium was supplemented with combination of 3.0mg/lit. BAP & IAA 0.1mg /lit, excellent morphogenetic response in terms of shoot induction and shoot multiplication were observed. Other combination and concentration of BAP & IAA showed moderate to poor morphogenetic response. On MS control medium no morphogenetic response were observed.

In vitro raised shoots were harvested and separated for root induction, profuse root induction were observed when the MS culture medium was supplemented with NAA 3.0mg/lit and IAA 1.0mg/lit. In this combination NAA helped for induction of roots from shoots while IAA helped for more elongation of healthy shoots. *In vitro* regenerated plantlets were shifted in 1:1:1 FYM for acclimatization and hardening. After successful standardization of micropropagation protocol 5000 plants were supplied to M.P. Bamboo Mission Bhopal.

Ongoing Projects

Externally Funded: Three

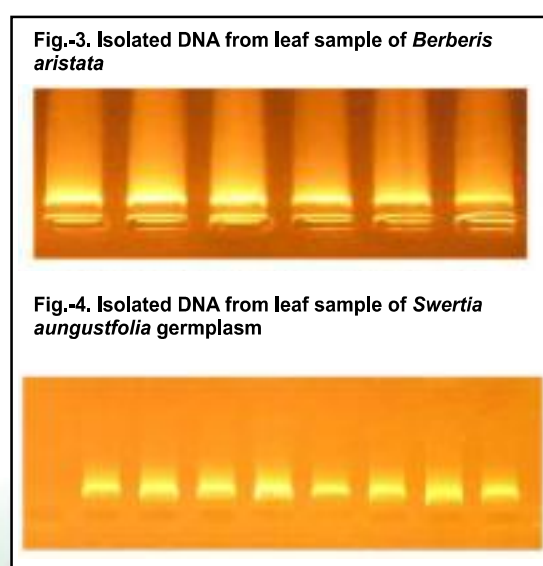
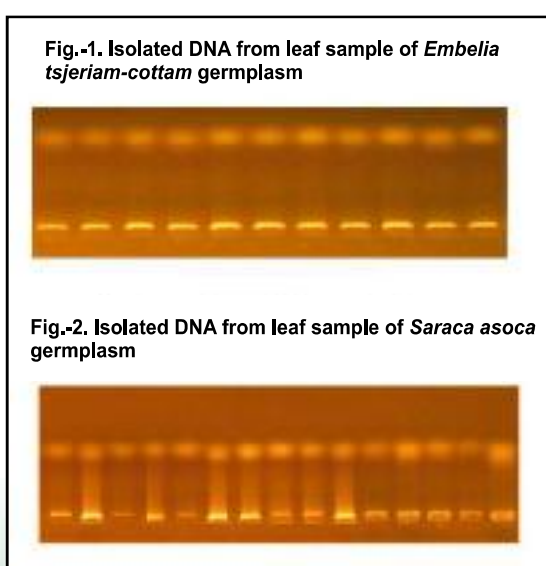
1. Genetic diversity assessment using molecular characterization, chemoprofiling, standardization of micropropagation and cryopreservation protocol of four RET

- species. (*Berberis aristata*, *Swertia angustifolia*, *Embelia tsjeriam-cottam*, *Saraca asoka*).
2. Quantitative determination of bio-active compounds of highly threat medicinal plant species (*Butea superba*, *Corallocarpus epigeous*, *Alectra chitrakutensis*) through chemoprofiling and standardization of propagation techniques using biotechnological interventions for their conservation.
 3. Monitoring and evaluation of tissue culture grown plants of *Dendrocalamus asper* in different forest divisions of Madhya Pradesh.

Summary of achievements / activities & outcome of each project:

1. **Genetic diversity assessment using molecular characterization, chemoprofiling, standardization of micropropagation and cryopreservation protocol of four RET species. (*Berberis aristata*, *Swertia angustifolia*, *Embelia tsjeriam-cottam*, *Saraca asoka*).**

Wild germplasm of selected species was collected from MH, TN, KA, AP, Kerala, MP and CG. **Standardization of chemoprofiling technique** was done through HPLC for identification of quality planting material. Estimation of Embelin from *Embelia tsjreiam - cottam* highest from MH population (4.88%) followed by CG (4.71%) & lowest in KA (2.60%). Berberin in *Berberis aristata* from Doopgarh (Pachmarhi, MP) (1.84%) & Foothills (MP) (1.25%) was estimated. Swertiamarin from *Swertia angustifolia* was estimated in Amarkantak (MP) (4.51%), Omaniya, Rajendragram (MP) (4.40%), and TN (2.28%). **Genetic diversity assessment: DNA Verification.** The isolated genomic DNA was verified using 0.8% Agarose gel (Promega) through electrophoresis unit (Genetix). **Amplification** - Primers amplified with *Saraca asoca*, *Embelia tsjeriam-cottam*, *Swertia angustifolia* & *Berberis aristata*. **Diversity** - (i) The MP population of *Swertia angustifolia* and *B. aristata* were found more diversified. In case of *Embelia tsjeriam-cottam* population from MH was found more diversified.



Genetic diversity assessment

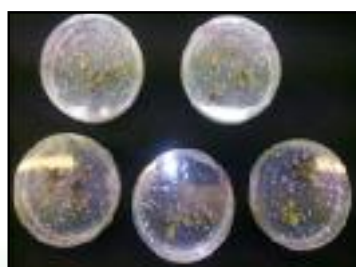
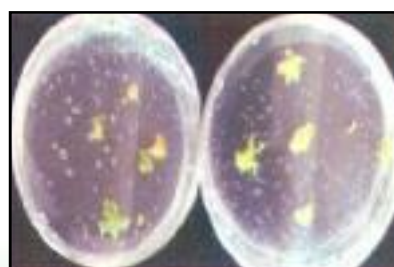
Micropropagation protocol have been standardized for *Embelia tsjerium-cottom*, *Berberis aristata*, *Swertia angustifolia* and in case of *Saraca asoca* *In vitro* multiplication is very slow, standardization of micropropagation protocol is in progress.

*Swertia angustifolia**Embelia tsjerium-cottom**Berberis aristata*

Macropropagation technique through stem branch cuttings from known sources successfully standardized and hardened for *Berberis aristata*, *Embelia tsjerium-cottom*, *Swertia angustifolia* but *Saraca asoca* showed very poor rooting response.

*Swertia angustifolia**Embelia tsjerium-cottom**Berberis aristata*

Cryopreservation protocol standardized through encapsulation technique from *in vitro* grown apical shoot tips for *Berberis aristata*, *Embelia tsjerium-cottom* and *Swertia angustifolia*.

*Swertia angustifolia**Embelia tsjerium-cottom**Berberis aristata*

2. Quantitative determination of bio-active compounds of highly threatened medicinal plant species (*Butea superba*, *Corallocarpus epigeus*, *Alectra chitrakutensis*) through chemoprofiling and standardization of propagation techniques using biotechnological interventions for their conservation.

Germplasm of selected species was collected from wild. As *Corallocarpus epigeus* (endangered) was found only in Khandwa, Khargone, Betul area due to non occurrence of this species *Pluchea lanceolata* has been proposed for study. Quantitative determination of secondary metabolites through High Performance Liquid Chromatography (HPLC) has been standardized successfully for the identification of quality planting material (QPM). The population of *Embelia tsjeriam-cottam* which was collected from Chhattisgarh (Dugali, Dhamtari) region showed maximum bioactive compound Embelin (4.71%). The Berberin (1.84%) bioactive compound of *Berberis aristata* was found maximum from the population of Pachmadhi (Doopgarh) area. The population of *Swertia angustifolia* from Amarkantak plateau showed maximum swertamarin alkaloid. The saponin bioactive compound was found maximum in *Alectra chitrakutensis* particularly Bhawar (Kalinjar road) at Chitrakoot forest division and in case of *Butea superba* purerain alkaloid was found maximum from Sarni Forest Division. Such identified population/germplasm can be used for further multiplication.

Due to non availability of sufficient amount of *Corallocarpus epigeus* germplasm the HPLC technique could not be standardized. It is proposed to change this species with *Pluchea lanceolata* (Asteraceae NT).

Micropropagation – *Alectra chitrakutensis* is parasitic plant. The host is *Vitex negundo* (Nirgundi) difficult to propagate without host but micropropagation has been successfully standardized for its multiplication without host and the plants has been successfully shifted to host plant as well as individual. *Butea superba* is under multiplication stage.



in vitro propagation of *Butea superba* under multiplication stage



in vitro propagation of *Alectra chirukutensis*

Macropropagation protocol of *Butea superba* and *Alectra chirukutensis* through stem branch cutting has been successfully standardized.



Macropropagation of Butea superba

3. Monitoring and evaluation of tissue culture grown plants of *Dendrocalamus asper* in different Forest Divisions of Madhya Pradesh.

50% Forest Divisions will be evaluated in terms of survival and growth every year for three years after rainy season for Tissue culture raised *D. asper* plants which were supplied by SFRI in June 2017 to various Forest Divisions.

Regular Activity : One

1. Hands on Training programme on plant biotechnology, plant propagation and tissue culture for different levels of trainees.

Summary of achievements of Regular Activity:

1. Hands on Training programme organised on plant biotechnology, plant propagation and tissue culture for different levels of trainees.

Type of training	No. of students
15 days	19
01 month	29
3 months	9
4-6 months (PG, Dissertation) continue	5

Other Significant achievements:

- a. Genetic diversity assessment of *Swertia angustifolia*, *Berberis aristata*, *Embelia tsjeriam-cottam* has been successfully established using RAPD Markers.
- b. Macro clonal propagation protocol of *Berberis aristata*, *Embelia tsjeriam-cottam*, *Swertia angustifolia*, *Butea superba*, *Alectra chitrakutensis* and *Saraca asoka* has been successfully established.
- c. Quantitative determination of secondary metabolites through High Performance Liquid Chromatography (HPLC) has been standardized successfully for the identification of quality planting material (QPM) from national level germplasm. The saponin bioactive compound was found maximum in *Alectra chitrakutensis* particularly Bhawar (Kalinjar road) at Chitrakoot forest division and in case of *Butea superba* purerain alkaloid was found maximum from Sarni Forest Division. Such identified population/germplasm can be used for further multiplication.

- d. The micropropagation protocol of critically endangered medicinal plants *Berberis aristata*, *Swertia angustifolia*, *Embelia tsjeriam-cottam*, *Butea superba* has been successfully standardized for their mass scale multiplication. A parasitic plant *Alectra chitrakutensis*, which is only found in Chitrakut region of M.P., has been successfully established by tissue culture technique.
- e. Long term storage through cryopreservation protocol has been successfully established for *Berberis aristata*, *Swertia angustifolia*, *Embelia tsjeriam-cottam*, *Butea superba* and *Alectra chitrakutensis*. This technique can be very useful for conservation and multiplication of such RET species when the need arises.
- f. 5000 plants of *Dendrocalamus asper* produced through tissue culture and were successfully distributed to 11 R & E Centres for establishment of demonstration plot and field trials.
- g. Provided technical knowhow and guidance for the establishment of tissue culture laboratory at R & E centre Indore.

2.5 FOREST MENSURATION AND STATISTICS

Mandate

1. Measurements of growth for computing volume and finding the development of crop stands, for different species, in different quality classes and in different climatic zones of the state.
2. Designing of experiment and analysis of data for all branches of the Institute.

Completed Project

Externally Funded : One

1. Computerization and digitalization of records of sample plots situated in Madhya Pradesh.

Summary of achievements/ activities & outcome of each project:

1. Computerization and digitalization of records of sample plots situated in Madhya Pradesh.

At present there are total 59 sample plots in various Forest Divisions of Madhya Pradesh established by Forest Mensuration Branch of State Forest Research Institute. These plots are measured periodically and the data are compiled for further studies. Measurements included diameter at breast height (DBH), height of the tree and actual volume of the felled trees. Under this project computerization and digitalization of all the height and diameter (DBH) measurements have been compiled in such a way that an initial database may be created for computation of growth parameters of any species at a given age. Scanned copies of plot chart, location map and dia-height curves of the sample plots have been scanned and saved in the computer system. This work was carried out to fulfill the following objectives:

- To store the data of the sample plots i.e. height and diameter (DBH) of all periodical measurements since the formation of sample plot.
- To create an initial database for guidance, reference and comparison.
- To prepare e-file of the sample plot with the help of existing sample plot file.

Ongoing Projects

Externally Funded : One

1. Demarcation (Protection), maintenance and record keeping of sample plots of Madhya Pradesh.

Internally Funded : One

1. Study based on growth of sample plots of Teak, Sal and other species laid out in different forest areas of Madhya Pradesh.

Summary of achievements / activities & outcome of each project:

1. Demarcation (Protection), maintenance and record keeping of sample plots of Madhya Pradesh.

There are 59 permanent sample plots in Madhya Pradesh. 41 of them are sample plots of Pure Stands, 17 are Tree increment plots (TIP) and one is Linear Tree Increment plot (LTIP) of miscellaneous species. These plots are measured periodically to determine the development of even aged crops and comparison of growth in different localities. In order to collect the valuable growth data it is very necessary to protect these plots from fire and illicit felling. Chainlink fencing of 42 sample plots have been done so far.

Internally Funded: One

Summary of achievements / activities & outcome of each project:

1. Study based on growth of sample plots of Teak, Sal and other species laid out in different forest areas of Madhya Pradesh.

- To study the yield for individual group for different site quality wise, forest type wise and species and to create an initial database for guidance, reference and comparison. The work is being carried out in the following phases -
 - Collection of data such as Age of the crop, Site quality and Crop parameters such as number of trees /ha, basal area/ha, crop diameter, top diameter, crop height, top height, age, MAI, CAI and volume measurement of felled trees in case of full measurement from plot files for different species.
 - Grouping of data into different site qualities, forest types and species wise.
 - Entering the data in computer.
 - Yield study for each group for different site qualities, forest types and species wise. Plotting of MAI and CAI curves for each group.
 - Estimation of future productivity.
 - Final compilation and publication of report.

Newly Initiated Projects

Externally Funded: One

1. Economic analysis of the rainfed teak plantations raised by MPRVVN under different models of planting for determination of optimum age of final felling to get the most profitable returns on the costs incurred in raising and maintaining them.

Summary of achievements / activities & outcome of each project:

1. Economic analysis of the rainfed teak plantations raised by MPRVVN under different models of planting for determination of optimum age of final felling to get the most profitable returns on the costs incurred in raising and maintaining them.

The management plans of different project divisions of MPRVVN have been making omnibus prescriptions regarding ages of thinning and final felling for all the rainfed teak plantations. The plantations are thinned during 11th, 12st, 31st and 46th years of planting and final felling has been prescribed to be done at the age of 60 years. However, in several other countries, the age of final harvesting of teak plantations is kept much lower. In view of this, the M.D. MPRVVN has desired that SFRI, Jabalpur should take up an economic study to determine the optimum ages of thinnings and final harvesting in the rainfed teak plantations raised by MPRVVN at sites with different site qualities and under different methods of planting to fulfill the following objection.

- To study the growth pattern in selected rainfed teak plantations of MPRVVN in different age classes raised at sites with different site qualities and under different models of planting.
- To calculate the average costs incurred and economic benefits accrued during different years of planting discounted to the present value at the prevalent rate of bank interest.
- To conduct economic analysis of these plantations by calculating B:C ratio and I.R.R.
- To determine the optimum ages and intensities of intermediate thinning on the basis of growth rates and congestion status and also of the final harvest for different site qualities and methods of planting using the above data.



Survey of rainfed teak plantations for collection of growth data

Regular Activity : One

1. Measurement of sample plots due for measurement in the year 2017-18

Summary of achievements of Regular Activity:

1. Measurement of sample plots due for measurement in the year 2017-18.

41 sample plots of Pure Stands, 17 Tree increment plots (TIP) and one is Linear Tree Increment plot (LTIP) of miscellaneous species. Total 59 sample plots of M.P. are measured periodically to determine the development of even aged crops and comparison of growth in different localities.



**Diameter Measurement using Caliper
in Sample Plot-18 of South Seoni**



Digging of Trench around sample plots



Digging of Trench around the plot



Marking of Trees in Sample Plot-18 in South Seoni



Boundary Pole TIP- 8



Bamboo Plot of South Seoni

Other significant achievements :

Statistical support given to research projects of Agro Forestry, Forest Botany, Wildlife, Silviculture, Forest Botany branches of the institute.

2.6 SEED TECHNOLOGY

Mandate

1. Collection of quality seeds from identified superior genetic sources.
2. Seed storage.
3. Seed certification.
4. Research on seed biology, pollination biology, physiology and biochemistry.
5. Contribution to the knowledge of seed technology with regard to enhanced germination and longevity of seeds.

Completed Project

Externally Funded : One

1. Training & Demonstration programme on Seed Technology, Seed Production Areas and Nursery Management of Field Foresters; under "Knowledge upgradation and skill development of field foresters, forest dependent communities and resource person through lab to land training modules".

Summary of achievements / activities & outcome of each project:

- 1 **Training & Demonstration programme on Seed Technology, Seed Production Areas and Nursery Management of Field Foresters; under "Knowledge upgradation and skill development of field foresters, forest dependent communities and resource person through lab to land training modules".**

The objective of this training course was to provide a basic understanding of seedstands, establishment of seed production areas, knowledge of seed maturity, seed extraction and cleaning, insect and disease problem, seed sampling, storage, seed testing, seed dormancy pre-sowing treatment and basic of nursery. For achieving these objectives two days training programme were organized in 5 phases to field foresters of various research and extension centers and Van Vikas Nigam of MP Forest department.

During these trainings, desired technologies of testing and certification were demonstrated. At the time of training programme training course material (3 bulletin related to seed nursery and plantation techniques) was provided to each participant. Total 372 field foresters of 11 R & E Centers and 2 Regional centers of Van Vikas Nigam were trained for production of quality planting stock.



Registration of field Foresters



Lecture and discussion between trainees and trainers



Demonstration of Scientific method of seed collection



Group Discussion and sharing of experiences



Field visit



Field demonstration of establishment and management of Seed Production Areas

Ongoing Projects

Externally Funded : Two

1. Standardization of seed and nursery techniques for production of quality planting stock of important indigenous species.
2. Collection, processing, testing, certification and supply of quality seeds of various forestry species.

Internally Funded : One

1. Production of quality planting stock of important RET and wild medicinal tree species through application of advanced technology.

Summary of achievements / activities & outcome of each project:

1. Standardization of seed and nursery techniques for production of quality planting stock of important indigenous species.

The objective of this project was to standardize seed and nursery techniques for enhancing germination potential, seed longevity and growth of seedlings through advance and systematic scientific methods for raising quality seedlings of targeted species. The seeds of *Adina cordifolia*, *Terminalia bellerica*, *Terminalia chebula*, *Sapindus trifoliatus* and *Adansonia digitata* were collected from identified superior sources done as in previous two years to verify the quality of seeds. The observations were recorded on morphological and physiological parameters of collected seeds. Seeds of targeted species were stored in different containers and tested with every three months intervals as previous years. Fresh and stored seeds were tested with various pre treatments for standardizing appropriate storage and pre-treatment methods. Under nursery techniques potting mixtures were tried and standardized for production of quality planting stocks. The work has been completed and results were found to be encouraging with respect to enhancement of the germination potential, longevity of seeds and growth and survival of plants through application of various seed sowing treatments and appropriate storage conditions.



Seed sowing with various pre-treatments



Nursery techniques for production of quality planting material

1. Collection, processing, testing, certification and supply of quality seeds of various forestry species.

The objective of the project was to supply of quality seeds for M.P. Forest Department, Semi-government department, NGOs and other user groups for raising quality plantation of various forestry species. For achieving the project objective, survey work in Seed Production Areas has been done for estimation of quality seed production and collection of seeds. 135 Beej Mitra has been trained for collection of quality seeds of various divisions.

Approx 2824.07 quintals of teak seeds were collected from superior sources and 2750 quintals teak seeds and 151 quintals seeds of other miscellaneous species were collected and supplied to the forest department and other user groups as per demand.

Internally Funded : One**Summary of achievements / activities & outcome of each project:****1. Production of quality planting stock of important RET and wild medicinal tree species through application of advanced technology**

The objective of the project is to promote plantation of rare and endangered threatened and wild medicinal species for future plantation programme and to enhance the growth of survival rate in the plantation by using quality planting stock. 50,000 thousand quality plants of 10 targeted species has been produced by using application of advanced technology.

Newly Initiated Projects**Externally Funded : One**

1. Training and Demonstration programme on Mahua flower production, collection, processing, storage and transportation.

Summary of achievements / activities & outcome of each project:**1. Training and Demonstration programme on Mahua flower production, collection, processing, storage and transportation.**

The objective of this project is to disseminate the package of practices of comprising scientific harvesting, processing, storage for maintaining the quality of mahua flower. 04 training and demonstration programme in South Shahdol, North Shahdol, Umaria and Anuppur division has been done for Mahua flower collectors and managers on Mahua flower production, collection, processing, storage and transportation in different forest divisions. 240 participants has been trained as master trainers. 5 training programme will be done in next year for different forest divisions.



Training & Demonstration Programme on mahua flower collection, processing, storage and transportation - South Shahdol Division

Regular Activity : One

1. Seed testing & certification

Summary of achievements of Regular Activity:**1. Seed testing & certification**

156 seed samples were tested and certified for standard parameters of teak and other miscellaneous species.

Other Significant achievement :

Certificate of excellence to Dr. Archana Sharma, Scientist-E was awarded from Hon'ble Forest Minister on Seed testing and training programme.

2.7 SILVICULTURE

Mandate:

1. Contribution to the knowledge of silviculture of forestry species.
2. Development and standardization of nursery and planting techniques of different forestry species.
3. Evaluation of plantations raised by the State Forest Department and Forest Development Corporation.
4. Evaluation of the quality and impact of various development activities of the State Forest Department.
5. Determination of sustainable harvesting practices of timber and bamboo species.
6. Provision of soil testing services to the SFD, FDC and other users.

Ongoing Projects

Externally Funded : Four

1. Study & Comparison of Soil Cultural Practices in existing bamboo (*D. strictus*) plantations.
2. म. प्र. राज्य वन विकास अभिकरण द्वारा विभिन्न वन विकास अभिकरणों में वित्तीय वर्ष 2013–2014, 2014–2015 एवं 2015–2016 के वर्षा ऋतु में हुए वृक्षारोपण कार्यों का अनुश्रवण मूल्यांकन किये जाने के संबंध में।
3. Mobile Soil Testing Van
4. Selection of suitable species on the basis of growth performance of established plantations and development of nursery techniques to increase green cover under Green India Mission (GIM) in western Madhya Pradesh.

Summary of achievements / activities & outcome of each project:

1. **Study & Comparison of Soil Cultural Practices in existing bamboo (*D. strictus*) plantations.**

Collection of data after soil working per clump no. of karla, mohila & pakia were recorded in existing bamboo plantations & data tabulation. Maintenance of experimental plot was done. Data entry, processing and analysis is in progress.



Measurement being taken at Kalpi Bamboo plantation

2. म. प्र. राज्य वन विकास अभिकरण द्वारा विभिन्न वन विकास अभिकरणों में वित्तीय वर्ष 2013–2014, 2014–2015 एवं 2015–2016 के वर्षा ऋतु में हुए वृक्षारोपण कार्यों का अनुश्रवण मूल्यांकन किये जाने के संबंध में।

Field work of all 11 Divisions completed and interim report submitted to funding agency.

Findings:

S.No.	Name of the FDA	Grading of FDA project on scale of 1 to 10
1.	South Seoni (2013-14)	8.0 Outstanding
2.	Narsinghpur (2013-14)	6.8 Very Good
3.	North Balaghat (2013-14)	7.5 Very Good
4.	South Balaghat (2013-14)	7.5 Very Good
5.	North Balaghat (2014-15)	7.5 Very Good
6.	South Balaghat (2014-15)	7.2 Very Good
7.	North Balaghat (2015-16)	8.1 Outstanding
8.	South Balaghat (2015-16)	7.2 Very Good
9.	North Seoni (2015-16)	8.2 Outstanding
10.	South Seoni (2015-16)	7.8 Very Good
11.	Narsinghpur (2015-16)	6.7 Very Good



FDA Plantation at North Seoni Dhooma Range

3. Mobile Soil Testing Van:

Activities carried out during the year:

Selection of site specific equipment for soil mobile lab, process for equipment procurement and procurement of mobile soil lab through E-Tender.

241 Soil samples were collected and analysis of samples from Katni, Jabalpur, Raisen, Indore, Mandla Forest Divisions & R&E Jabalpur is under progress.



Soil sample collection at Indore and Raisen Forest Division

4. Selection of suitable species on the basis of growth performance of established plantations and development of nursery techniques to increase green cover under Green India Mission (GIM) in western Madhya Pradesh.

Review of literature and proforma for pilot survey has been prepared. Pilot survey of 16 divisions (Mandsaur, Neemach, Ratlam, Ujjain, Dewas, Indore, Sajapur, Rajgarh, Dhar, Jhabua, Khandwa, Burhanpur, Khargon, Badwani, Harda and Alirajpur) has been done. Literature (Compartment history, plantation journal, plantation evaluation report) regarding forest divisions of Western M.P. has been collected by research team.



Measurement being taken at Harda Forest Division



Plantation of Indore Forest Division

Regular Activity : One

1. Analysis of soil samples.

Summary of achievements of Regular Activity:

1. Analysis of soil samples.

509 soil samples were received from Forest Department, MPRVVN Ltd., private agencies (NGO's) and various branches of the institute. These were analysed for their physical and chemical properties and nutrients status for various parameters viz. moisture, pH, EC, organic carbon%, organic matter, available nitrogen, phosphorus, potassium, calcium, sodium, water holding capacity, textural class, bulk density, specific gravity, etc. Soil analysis reports were sent to the concerned agencies and various branches of the institute.



Visit of soil lab by Trainee Foresters



Training of soil sample collection method

Other significant achievements:

1. Technical guidance was provided to Research & Extension Circle, Seoni nursery in the research projects with submission of report.
2. Poster presentation on “Planted Forest: Capability towards carbon sequestration and climate change mitigation” in National seminar at SFRI Jabalpur.
3. Exposure to Soil lab and Mobile Soil Testing Van to probationer IFS officers, Trainee Range Forest Officers from T.S. Forest Academy Dulapally, Hyderabad, State Forest Academy, Dharwad and West Mandla(T) Forest Division and field foresters from R&E Circle, Betul and trainee forest guards of Balaghat and Seoni.

2.8 SOCIAL ECONOMICS AND MARKETING

Mandate

The branch conducts research on social, economic, utilization and marketing aspects related to forestry. The broad areas of research are:

Social Economics

- Forestry in context of socio- economic development and tribal economy
- People participation in JFM and other forestry programmes
- Climate change mitigation and adaptation.

Marketing

- Marketing of forestry products
- Marketing Information Service

Utilization

- Forest based industries and rural development.
- NWFP processing

Archive

- Maintenance of Forest Archive
- Restoration and Preservation of old records

Ongoing Projects

Internally Funded : One

1. Market information service for NTFPs in M.P.

Externally Funded : Four

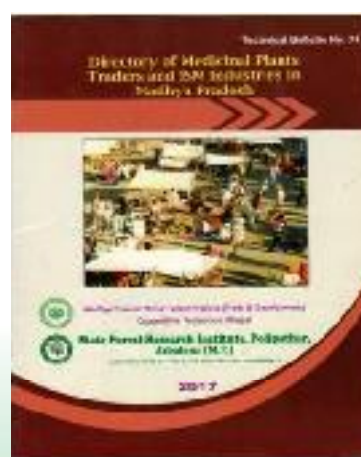
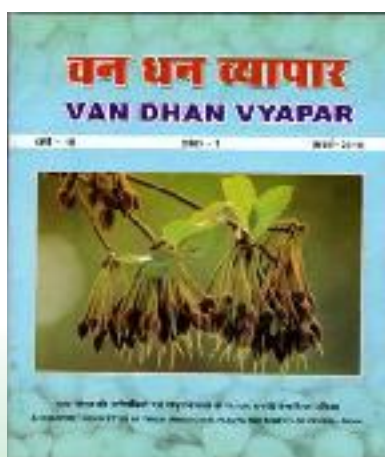
1. Network project on conservation of lac insects genetic resources.
2. The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights Act), 2006: implementation and its impact in Madhya Pradesh.
3. Climate change and its impact on forests and the livelihood of people of Damoh district.
4. Estimation of wood demand and supply in Madhya Pradesh.

Summary of achievements / activities & outcome of each project:

1. Market information service for NTFPs in Madhya Pradesh.

1. Quarterly MIS survey was conducted and market information of NTFPs collected, analyzed and compiled from important markets in Madhya Pradesh, Chhattisgarh, Maharashtra states.
2. Publication of quarterly newsletter Vandhan Vyapar Vol. 16(2,3&4) and Vol. 17(1).
3. Disseminated information on NTFPs to Traders, Farmers, Institutes, Universities, Forest officials, Students and Subscribers.
4. Publication of directory of medicinal plants traders and ISM industries in Madhya Pradesh.
5. Data entry and analysis of MIS price data for 63 important NTFPs.

Zone wise markets covered by MIS centers		
Zones	Centres	Districts and Markets covered
Eastern	Katni	Rewa, Shahdol, Umaria, Katni Satna and Sidhi.
Southern	Chhindwara	Chhindwara, Betul, Harda, Seoni, Hoshangabad and Narsinghpur.
Central	Bhopal	Bhopal, Vidisha, Sehore, Raisen, Shajapur, Raigarh.
Northern	Shivpuri	Shivpuri, Sheopur, Morena, Gwalior, Tikamgarh and Guna, Bhind, Datia.
Western	Indore	Indore, Khandwa, Jhabua, Dhar, Dewas, Ujjain, Ratlam and Neemuch.
Nodal Centre	MIS Cell, SFRI	Jabalpur, Mandla, Dindori, Balaghat, Sagar, Damoh, Panna and National market.



Externally Funded: Four**Summary of achievements / activities & outcome of each project:****1. Network project on conservation of lac insects genetic resources.**

Survey of lac insect/host plant potential areas in Madhya Pradesh, Maharashtra, Goa, and Daman-Diu were conducted by the Network Cooperating Centre established at S.F.R.I., Jabalpur. Lac insect and their host plants potential areas were surveyed in 08 districts of Madhya Pradesh, 14 districts of Maharashtra, North Goa, South Goa and Daman.

Survey was undertaken in blocks for lac insect, host plant in potential areas in various blocks. Identified lac insect and host plants potential area was tracked by G.P.S. The data was collected on lac insect population size, stage, crawler period, special characteristics, material collected, source/habitat, frequency, sampling, predators, parasitoids, disease symptoms, host plant.

Table 1 – Block wise occurrence of lac insect in Madhya Pradesh

S.No.	District	Blocks with lac insect occurrence	Host plants
1.	Chhatarpur	Lavkushnagar	Pipal
2.	Ashoknagar	Ashoknagar, Mungawali, Sadora	Palas, Pipal, Bargad
3.	Guna	Guna, Kumbhraj, Rathihai, Binaganj, Maksudanganj	Pipal
4.	Rajgarh	Sarangpur, Khilchipur, Jirapur, Narsinghgarh, Pachore	Pipal
5.	Vidisha	Sironj, Vidisha	Pipal
6.	Satna	Garod, Satna, Rampur	Pipa
7.	Rewa	Rewa, Govindgarh	Pipal
8.	Burhanpur	Burhanpur	Pipal

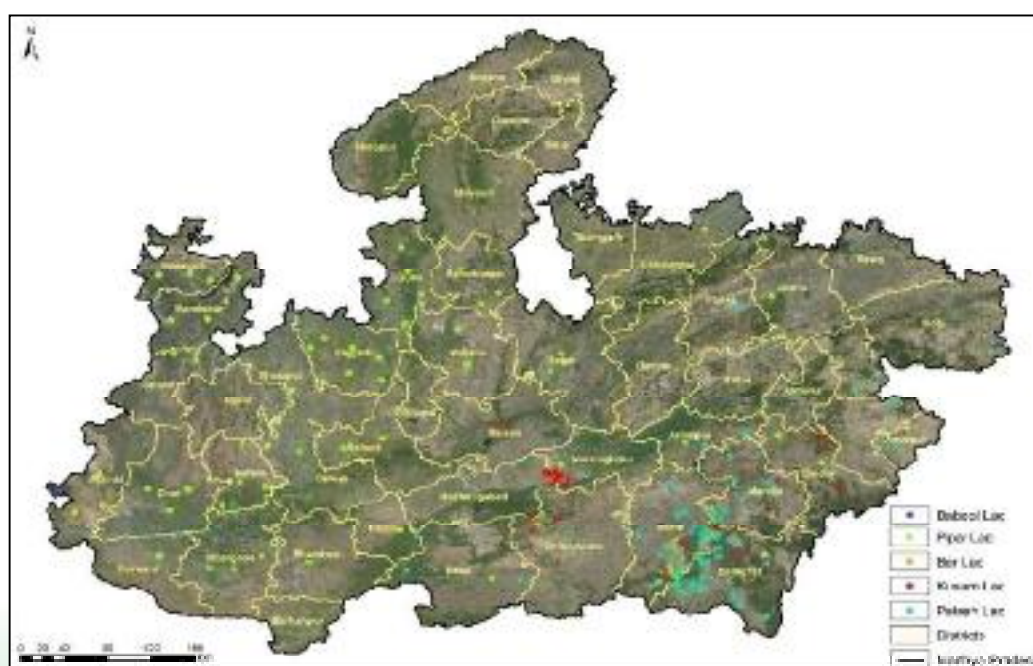
**Map showing the occurrence of the lac insect in different host plants of Madhya Pradesh**

Table 2. Block wise occurrence of lac insect in Maharashtra

S.No.	District	Blocks with lac insect occurrence	Host plants
1.	Yavatmal	Arni	Palas
2.	Latur	Latur, Sirur, Ahmedpur	Pipal, Gular
3.	Sangli	Sangli, Kavthe Mahankal	Rain tree, Gular
4.	Osmanabad	Osmanabd	Pipal
5.	Solapur	Solapur	Pipal
6.	Satara	Panchwad	Rain tree
7.	Pune	Shirur	Rain tree
8.	Ahmednagar	Ghodegaon, Kopalgaon, Sangamdore	Rain tree
9.	Aurangabad	Aurangabad	Pipal
10.	Nandurbar	Dondaicha, Nandurbar	Rain tree
11.	Dhule	Sindhkhede	Bargad, Pipal,
12.	Nashik	Malegaon, Nashik, Yeola	Pipal
13.	Mumbai	Fort, Mumbai	Pipal
14.	Jalgaon	Chalisingaon	Pipal

**Map showing the occurrence of lac insects in Maharashtra**

**Training of adopted/selected farmers in collaboration with IINRG
for *in-situ* conservation**

Madosa, Panna	The workshop comprised of 43 farmers from Madosa, Belhai, Silee villages.
Chouri, Shahdol	The workshop comprised of 23 farmers from Chauri, Madi, Gagvahi, Vardhar, Nogai, Tukri villages.
Banoda, Umaria	The workshop comprised of 26 farmers from Banoda, Sarvakala, Parsauta villages.
Nandia, Hoshangabad	The workshop comprised of 25 farmers from Nandia Renikheda villages and field staff of the forest department.
SFRI for Damoh farmers	The workshop comprised of 15 farmers from Bagdari, Emlidol and Tendukhed of Damoh district with forest department.
Haldi, Shahdol	The workshop comprised of 20 farmers from Devgai, Semra Saranpur, Kodwar, Hardi of Shahdol district, Lakhvaria villages with forest department.
Sukhri, Niwas	The workshop comprised of 17 farmers from Sukhri and Kharkhara villages.
Javaida, Mandla	The workshop comprised of 23 farmers from Javaida and Paili villages.



Preparation of *Flemingia macrophylla* plant by Air layering



Preparing bundles of kusumi brood lac



Harvested lac crop

2. The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Right Act), 2006: Implementation and its impact in Madhya Pradesh.

Survey work was completed in eight selected districts including National Park, Sanctuary and MPRVVN area. Data analysis is in progress.

The study reveals that in most of the cases, the Forest Rights Committees were constituted and initial trainings were imparted to the office bearers and village people to create awareness of the FRA, 2006 during implementation. But in the process claimants registers were not maintained properly. Many claimants did not have written documents about the rejection of their claims, only in some cases verbal information were given. SDLC did their duty of checking claims, distribution of application forms. However, in many instances Range offices did not have information as they passed on the onus to Janpad Panchayat.



FGD of Dewas (Kannod) showing their land title



Discussion with tribes in Chhatarpur

3. Climate change and its impact on forests and the livelihood of people of Damoh District.

Assessment of impact of climate change on forest: Nine study parameters were selected to study the impact of climate change on forest, namely rainfall, temperature, ground water level, regeneration, forest fire, pest and disease, agriculture, tree growth and plant phenology. **Assessment of livelihood vulnerability index:** Research methodology of Hahn et al_2009 was applied in the survey of livelihood vulnerability assessment. A perception based study on climate change was carried out in five villages in two tehsil of Damoh district. Households were surveyed by structured questionnaires. Three workshops were conducted in Damoh.



Climate Change Perception Survey



Livelihood Vulnerability Assessment Survey



Workshop on Climate Smart Village

4. Estimation of wood demand and supply in M.P.

Survey of rural and urban households, timber traders, merchants and furniture units and other wood based industries were conducted in selected districts of: Chhindwara, Damoh, Indore, Jabalpur, Sheopur, Shivpuri, Ujjain, Satna, Hoshangabad, Tikamgarh.

Data was collected from sawmills from all divisions. Production data from PCCF (Production) MP and MPRVVN, Bhopal for all districts. Survey of carpenters to find supply of wood from Trees Outside Forests (TOFs) and latest estimates of Forest Survey of India for TOFs.

2.9 TREE IMPROVEMENT

Mandate

1. To select, document and maintain the plus trees.
2. To raise seedling and clonal seed orchards.
3. To conduct progeny trials.
4. Tree breeding.
5. To raise quality planting stock.
6. To study reproductive biology of trees.
7. To propagate rare and endangered species.

Completed Project

Externally Funded : One

1. Establishment of Bamboosetum and Bamboo Interpretation Centre at SFRI Jabalpur

Summary of achievements/ activities & outcome of each project:

1. Establishment of Bamboosetum and Bamboo Interpretation Centre at SFRI Jabalpur.

The bamboosetum was established in SFRI campus, Jabalpur in early nineties. 13 Bamboo species were introduced in the bamboosetum in an area of approximately 1 ha. These species were collected from various parts of the country. A new bamboo species was introduced in this bamboosetum in the year 2006. Thus, 14 different bamboo species was conserved since its inception. Total 18 new species were introduced during project period in the bamboosetum, these bamboo species were collected and purchased from different districts of Madhya Pradesh, Kerala Forest Research Institute, Kerala and states of North East. At present 32 species are being maintained in the bamboosetum.

Bamboo interpretation centre was established in SFRI Administrative Building. 74 bamboo articles were collected from various parts of Madhya Pradesh. Information regarding bamboo was exhibited in the interpretation centre. This interpretation centre was presented in the form of charts, photographs, decorative and luxury items, seed/nursery/planting techniques of bamboo. Bamboo articles were maintained with treatment of boric acid and borax. To prevent the articles from the attack of borers, termites and fungi.

Ongoing Projects

Externally Funded : One

1. Maintenance and enrichment of SFRI Bamboosetum.

Internally Funded : One

1. Evaluation of performance of different plus trees of Teak through progeny trial.

Summary of achievements / activities & outcome of the project:

1. Maintenance and enrichment of SFRI Bamboosetum.

SFRI, Jabalpur established Bamboosetum in an area of 1.0 ha. This bamboosetum consists of 32 species comprising of 10 genera. To create awareness among various stakeholders it is important to collect and introduce other bamboo species for the enrichment of this Bamboosetum along with its maintenance. This bamboosetum facilitates further genetic improvement programme such as their propagation and multiplication by various means. Fencing work of existing bamboosetum is in progress. Maintenance of bamboosetum is going on. 17 new bamboo species other than 32 bamboo species have been procured from Rain Forest Research Institute Jorhat (Assam) and other states of North East for enrichment of bamboosetum.



Bamboosetum of SFRI, Jabalpur

Internally Funded : One

Summary of achievements / activities & outcome of the project:

1. Evaluation of performance of different plus trees of Teak through progeny trial.

A progeny trial was established at Katni with 10 families so as to evaluate the plus trees for their breeding value. This trial can be converted to a seedling seed orchard

after proper evaluation and thinning or can be retained as a breeding population. Ten families (treatments) with three replications were raised in random block design with the spacing of 4 m x 4 m. A total of 18 trees were raised in each treatment. A total of 540 seedlings of plus trees were raised in progeny trial at Katni. Flowering behavior of progenies and fruit formation behavior of progenies were studied for different plus trees. Growth behavior will be analyzed on the basis of their genetical response to the trait. Fencing of progeny trials is in progress.



Progeny trials of teak at Katni Forest Division

Regular Activities : Six

1. Maintenance of Seedling Seed Orchards of *Gmelina arborea*.
2. Maintenance of Clonal Orchard of *Zizyphus jujuba*.
3. Maintenance of Germplasm bank of fruit bearing species.
4. Maintenance of clonal germplasm of Mahua (*Madhuca latifolia*).
5. Provenance trial of *Litsea glutinosa*.
6. Identification and documentation of plus trees of important tree species.



Maintenance of Clonal Germplasm of *Madhuca latifolia* (Mahua)



Provenance trial of *Litsea glutinosa* (Maida)

Other Significant Achievements

1. अनुसंधान एवं विस्तार वृत्तों के माध्यम से संचालित लघु अनुसंधान कार्यों पर तकनीकी सलाह एवं मार्गदर्शन के अंतर्गत अनुसंधान एवं विस्तार वृत्त खंडवा में अनुसंधान विषय— “बड़े पौधों की

स्थानांतरण हेतु उपलब्ध विधाओं का अध्ययन एवं स्थानीय स्तर पर कम व्यय द्वारा स्थानांतरण तरीकों का विकास" पर विस्तृत परियोजना प्रतिवेदन तैयार करने एवं परियोजना कार्य हेतु तकनीकी मार्गदर्शन प्रदान किया गया।

2. Exposure to trainee forest guards of Forest School, Lakhadon & Amarkantak and B.Sc (Ag) and B.Sc (Forestry) students from Mewar University, Rajasthan regarding Tree Improvement Programme, Bamboosetum and Bamboo Interpretation Center.
3. Application of insecticide Chloropyrifos (20% EC) on termite affected 129 trees of miscellaneous species having different girth in SFRI Campus to control termite attack. This insecticide was applied twice a month and found to be effective control for termite attack.
4. "महुआ में क्रांतिकीय प्रवर्धन का महत्व एवं आवश्यकता" तथा "बीज उद्यान स्थापना हेतु धनवृक्षों (सर्वोत्कृष्ट वृक्षों) का चयन" विषयों पर प्रशिक्षण सामग्री तैयार की गई।

2.10 WILDLIFE

Mandate

1. Monitoring and evaluation of wildlife and their habitats
2. Study on ecology and conservation of wildlife including herbivores, carnivores and avifauna of this state
3. Impact of wildlife on human habitation and vice versa
4. To prepare wildlife management plan
5. Serve as nodal agency for scientific inputs to compliment management authorities
6. To develop wildlife forensic laboratory
7. Documentation and dissemination of information on wildlife conservation

Completed Projects

Externally Funded : Two

1. Phase-IV: Monitoring and evaluation of wildlife and their habitats for sustainable management and development in the protected areas of Madhya Pradesh.
2. Evaluation of impact of rehabilitation of Pardi children in Panna district of Madhya Pradesh with reference to the wildlife conservation.

Summary of achievements/ activities & outcome of each project:

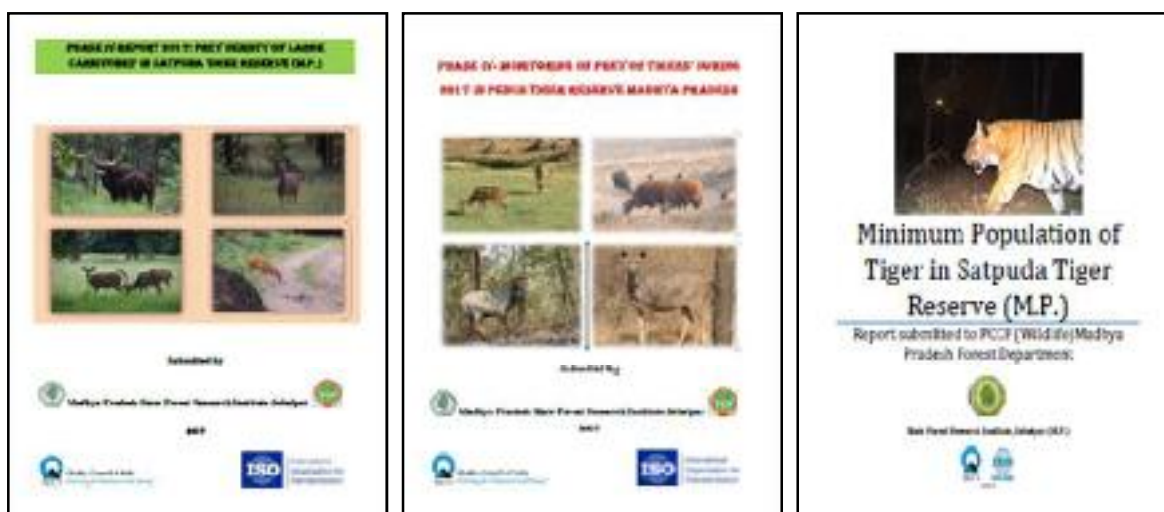
1. **Phase-IV: Monitoring and evaluation of wildlife and their habitats for sustainable management and development in the protected areas of Madhya Pradesh.**

One of the major objectives of this project was to strengthen/improve the facilities for wildlife monitoring and data interpretation. 1490 White Flash Camera, 10 Very High Frequency radio collars and 60 Sunto compasses have been installed during 2017-18 in various Protected Areas of Madhya Pradesh to collect field data under this project.

Analysis of line transects data showed; Sanjay-Dubri lacks principal prey species of tiger i.e. Chital and Sambar. So it is crucial to develop suitable conservation strategies such as grassland management, habitat development and conducting deer translocation programme using suitable scientific method for both of these cervid species for the long term sustenance and growth of large carnivore population in this landscape. Nilgai population is very high in Bagdara Wildlife Sanctuary and contributed to high biomass in this sanctuary.

In Satpuda, sambar and wild pig density \pm SE/ sq km of 2017, found significantly ($P < 0.05$) increased from earlier estimates of 2016 where as chital, common langur and gaur density \pm SE/ sq km found stable between this periods. Out of 29 photo-captured tiger individuals, 13 were male and 16 were female. Tiger Photographs of Satpuda have been compared with adjacent tiger data base of Pench and it was observed that, one male tiger (MP-PETR-24) have dispersed to Satpuda and photo-captured in 2017. This tiger individual is renamed as MP-STR-22 included in Satpuda data base. Dispersing of tigers from Pench to Satpuda uphold the conservation importance of Pench and Satpuda tiger corridor.

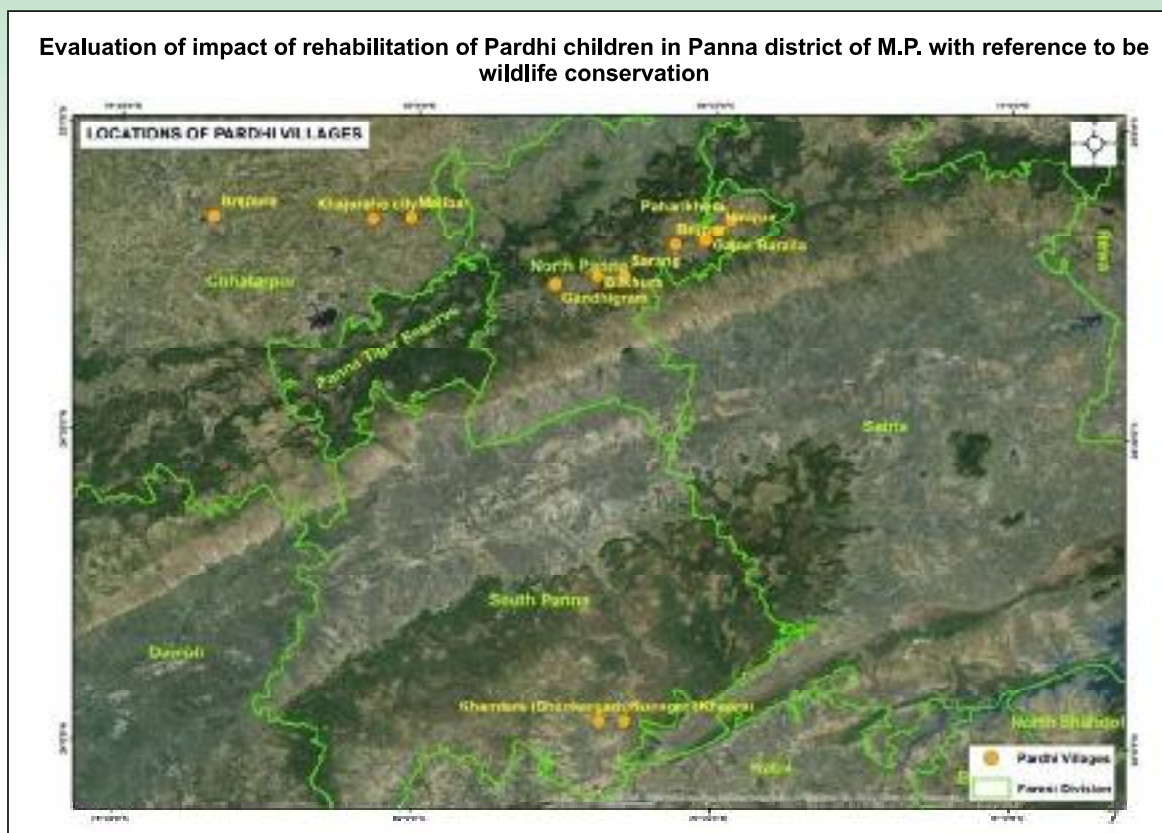
In Pench, overall densities \pm SE of chital, sambar, nilgai, wild pig, gaur and langur were compared with earlier estimates in 2016 and there was insignificant ($P > 0.05$) changes in densities \pm SE of chital, sambar, nilgai, wild pig and gaur, where overall density varies significantly ($P < 0.05$) in case of common langur.



2. Evaluation of impact of rehabilitation of Pardhi children in Panna district of Madhya Pradesh with reference to the wildlife conservation.

Pardhi are nomadic tribes and are mostly known to inhabit northern, central and western Indian landscape, the forests of Maharashtra, Madhya Pradesh and some parts of Karnataka and Andhra Pradesh. To assess the impact of Pardhi children rehabilitation plan on beneficiaries and their parents in the Panna district of Madhya Pradesh, aforesaid study has been undertaken by this institute.

Evaluation of impact of rehabilitation of Pardhi children in Panna district of M.P. with reference to be wildlife conservation



A questionnaire method used to evaluate the impact of gentrification project on the behavior and psychology of children as well as parents. Adolescent Personality Test (APT) has been selected for observing differences in the perception of beneficiary and non-beneficiary children. Data regarding planning, implementation and monitoring of the program have been collected during the site visits. Our study showed a significant difference in general awareness, awareness towards cultures and rituals, Attitude towards wildlife and behavioural changes between beneficiary and non beneficiary Pardhi children whereas no significant changes on the same categories (beneficiary and non beneficiary) were observed in their parents.

Following actions were suggested to upgrade the life style of Pardhi communities :

- Declaration as Scheduled Tribe
- Providing Caste Certificates
- Resolving the incidents of dropouts
- Alternative livelihood, monetary support and jobs
- Employment plans for students
- Up gradation of residential hostel facilities
- Ensuring funding for the program for forth coming years.

Ongoing Projects

Externally Funded : Five

1. Impact of tourism on ecological, economical and social dynamics in and around the Tiger Reserves of Madhya Pradesh.
2. Study on agricultural crop damage by wild Animals and its management in Hoshangabad Circle of Madhya Pradesh.

3. Role of management interventions in wildlife habitat improvement on abandoned sites of Satpuda Tiger Reserve, M.P.
4. Capacity building of Forest Staff of Madhya Pradesh on Wildlife Population Monitoring Techniques.
5. Preparation of Detailed Project Report For wildlife habitat improvement in the adjoining area of Sardar Sarovar Project Madhya Pradesh”.

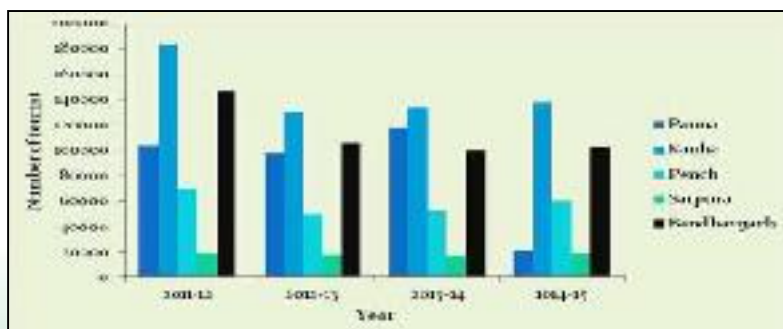
Summary of achievements / activities & outcome of each project:

1. Impact of tourism on ecological, economical and social dynamics in and around the Tiger Reserves of Madhya Pradesh.

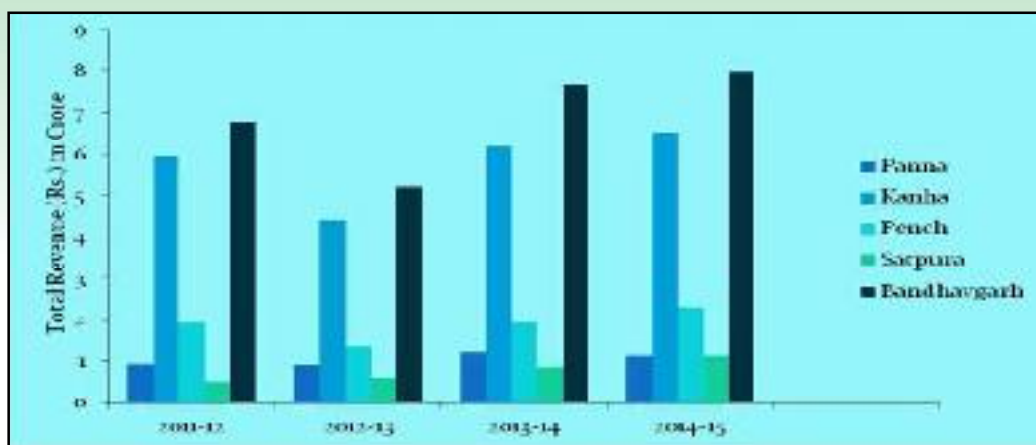
Tourism is one of the largest & fast growing sectors that is capable of changing the socio cultural, economic and environmental face of the world and has the potential to influence the living pattern of communities. To observe the impact of tourism on environment, ecological & socio-economic, data was collected from 5 tiger reserves (Bandhavgarh, Kanha, Panna, Pench & Satpura) of Madhya Pradesh. To observe the status of tourists and social culture impact questionnaire survey was applied. To observe the pollution level on environment, air & noise pollution data was collected with the help of Instrument “Aerocet 831” & "Environment SLM 100 integrating sound level meter" respectively & compared with the standard limit prescribed by Central Pollution Control Board. For knowing the economic gain from tourism & annual tourists data was collected from park authorities. Human wildlife conflict data was collected from park authorities' during 2010-17, information was collected of awareness programmes organised by Forest Department & NGO's & suggested mitigation for minimizing the adverse impact of tourism in tiger reserves.



Field survey and collection of data

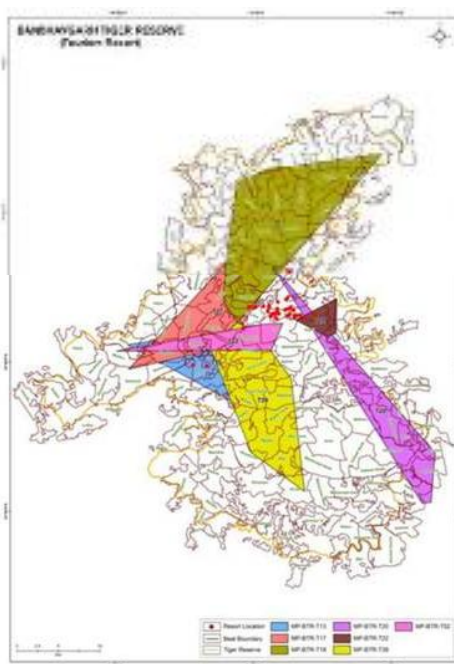


Total number of tourists



Total revenue (in Rs.) crore

Location of resorts on tigers movement areas at Bandhavgarh (2016-17)



Name of Resort	Tiger ID
Bagh Sararai	MP-BTR-T13
Salvan	MP-BTR-T13
Tiger Ghar	MP-BTR-T17
Tiger Ghar	MP-BTR-T18
Tiger Valley	MP-BTR-T13
Tiger Valley	MP-BTR-T39
Tiger Valley	MP-BTR-T52
UNDC	MP-BTR-T20
UNDC	MP-BTR-T20
UNDC	MP-BTR-T22
UNDC	MP-BTR-T22
UNDC	MP-BTR-T22

Data Collection from Tiger Reserves

2. Study on agricultural crop damage by wild animals and its management in Hoshangabad Circle of Madhya Pradesh.

The following activities have been done to estimate the crop damage through direct and indirect method and find out the correlation factor to evaluate the crop damage to resolve human wildlife conflicts around forest fringe areas.

- Experimental plots were laid out and data collected from 92 farmers by questionnaire survey method.



- Line transects method for direct animal abundance- 10 transects of 3 km each walked in early morning of winter season. Rectangular plot in every 400 meter of line transect to know wild-animal abundance by indirect evidences.
- Machan Count Method was also used to identify and count wildlife involved in crop raiding in the study area. Machans were established near crop fields at the height of approx 2 meters from ground.



Machan established near crop fields for Machan Count of Wild Animals

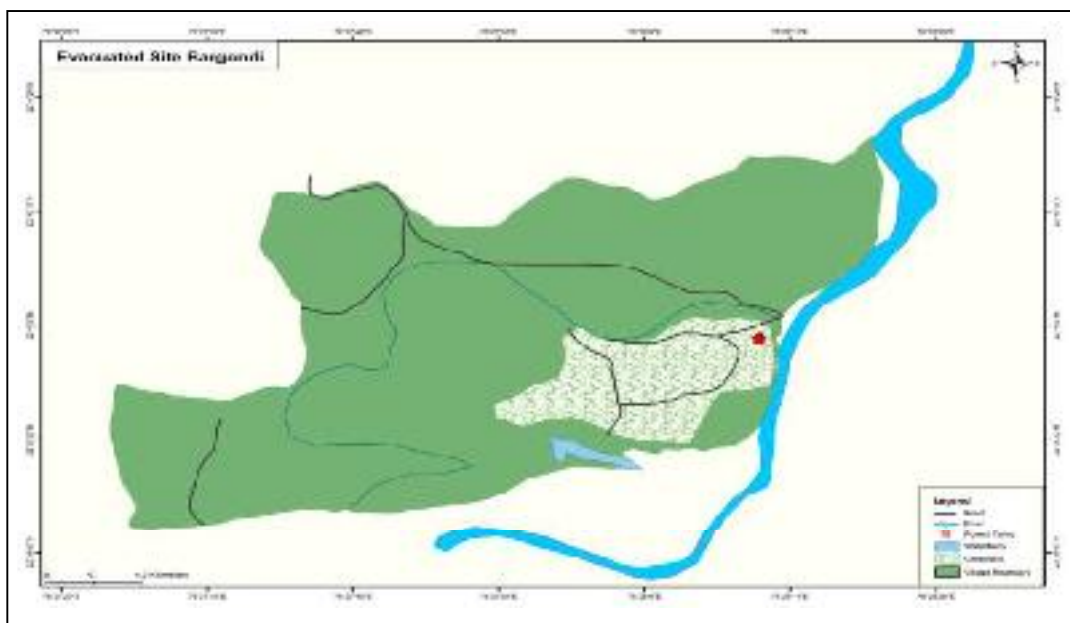
3. Role of management interventions in wildlife habitat improvement on abandoned sites of Satpuda Tiger Reserve, M.P.

Mapping of grasslands have been done on evacuated sites after completion of village relocation. Out of 38, 19 evacuated sites have been selected for intensive study. Two established grassland and two control site were also selected. Data on the composition of grasses were collected by quadrat sampling method. Analysis of data is in under progress. Herbivore pellets were quantified to study density of herbivores. Mostly Chital pellets were encountered followed by Sambar, Nilgai and Barking Deer. Out of 19 grasslands, chital pellets were restricted in 11 grasslands while sambhar

pellets were recorded in all grasslands. 164 Camera traps have been installed to know the distribution and population of mammals. Analysis of camera trap data is under progress.



Field activities being carried out for data collection



Map showing grassland and village boundary in evacuated village site Bargondi



Evacuated village site



Chital grazing in grassland

4. Capacity building of Forest Staff of Madhya Pradesh on Wildlife Population Monitoring Techniques.

To augment the domain knowledge of frontline forest staff of Madhya Pradesh on advanced population monitoring tools and technologies to collect quality data for AITE-2018, 265 master trainers has been trained in 1st Phase (17th May – 5th July 2017), 294 master trainers were trained in 2nd Phase (4th - 25th January 2018). Training module and manuals have been prepared by SFRI, based on the protocols provided by NTCA and WII which was further updated during 2nd Phase of training programme. As per the new guidelines, entire Phase 1 data was entered in m-Stripe software and handed over to SFRI by total 83 Forest Divisions of Madhya Pradesh Forest Department.

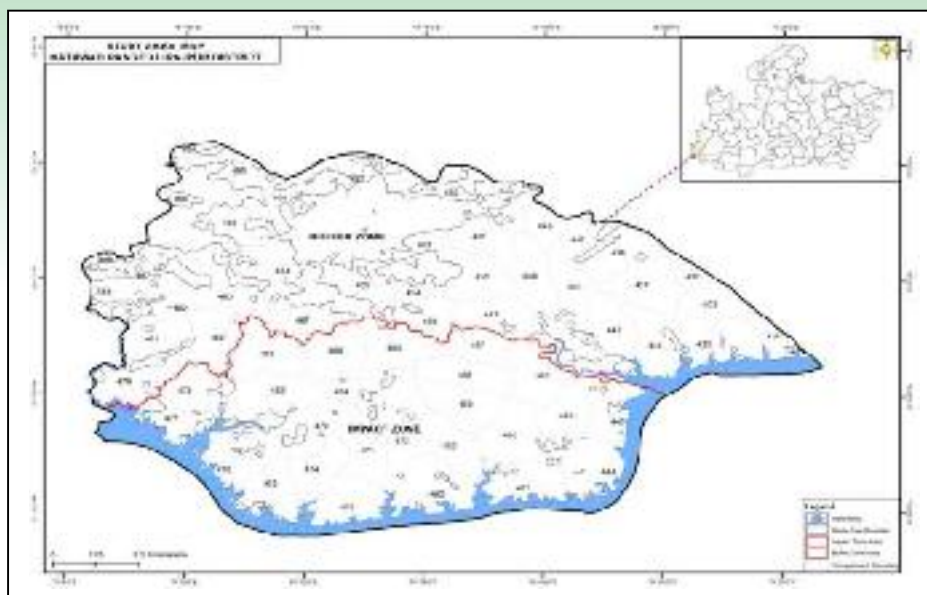
Pre and post evaluation tests were conducted and overall 10% knowledge increment of the trained master trainers from pre to post evaluation test was found, proving the efficacy of training programme.



Various field and classroom training programmes in progress

5. Preparation of detailed project report for wildlife habitat improvement in the adjoining area of Sardar Sarovar Project Madhya Pradesh”

The focus of this project is on investigation into impact of the project on flora, fauna and wildlife habitat within the submerged area of Sardar Sarovar. The Study area comprises 174.25 sq km which includes 76.89 sq km as impact zone and 97.36 sq km as buffer zone.



Installation of Camera trap, Transect line survey, Vegetation, Survey of Aquatic Fauna, Identification of microhabitats and special macro-habitats, sites for soil and water conservation, enrichment planting/seed sowing, suitable sites for development of grasslands with GPS coordinates recorded in the study area of Mathwad Range. Identification of site selection for stop/check dam/water holes Eco-tourism sites has been done with their GPS coordinates. Socio-economic (PRA) survey has been completed. Avifauna survey around 81 species of migratory and residential birds have been recorded. Total 38 trap days and 912 trap nights' of camera trap study revealed 250 photographs of 9 wild mammals and four birds species. Jackal was highly abundant in the study area and site occupancy is 0.76 ± 0.01 followed by small Indian civet, Stripped hyena, Jungle cat, Palm civet, Black napped hare and Fox.



Discussion with forest officer



Site View



Installation of Camera Trap



Meeting with officers of NVDA at SFRI, Jabalpur



Wildlife Captured in Camera Traps & Their Site Occupancy in the study area of Mathwad Range, Alirajpur Division	
Species	Site Occupancy \pm SE
Striped Hyena	0.47 \pm 0.14
Jungle cat	0.40 \pm 0.11
Golden Serval	0.76 \pm 0.01
Indian Fox	0.05 \pm 0.008
Small Indian Civet	0.74 \pm 0.05
Asian Palm Civet	0.15 \pm 0.03
Black Napped hare	0.15 \pm 0.03

Camera Trap locations in the study area

Regular Activity : One**1. Maintenance of Monitoring and Evaluation Facilities and Database of Predators Prey in Madhya Pradesh.**

Maintenance of monitoring equipments and database is carried out at frequent intervals.

2.11 AGRO-FORESTRY**Mandate**

1. Documentation of existing agro-forestry systems in different agro-climatic conditions.
2. Impact assessment of agro-forestry technologies on natural resource management and livelihoods.
3. Study of social, anthropological and economic issues of agro-forestry with special reference to tribals and women.
4. Strengthening agro-forestry database development programme and to serve as a repository of information.

Completed Project**Externally Funded : Two**

1. मध्यप्रदेश में प्रमुख गोंदों के संग्रहण के आँकड़ों का संकलन एवं प्राथमिक संग्राहकों पर सामाजिक आर्थिक प्रभाव ।
2. सलई गोंद संग्रहण प्रशिक्षण : मध्यप्रदेश में गोंदों का सतत् विदोहन, प्रसंस्करण, श्रेणीकरण, भण्डारण, पैकेजिंग एवं विपणन की वैज्ञानिक तकनीक ।

Summary of achievements/ activities & outcome of each project:

1. मध्यप्रदेश में प्रमुख गोंदों के संग्रहण के आँकड़ों का संकलन एवं प्राथमिक संग्राहकों पर सामाजिक आर्थिक प्रभाव :

आँकड़ों के विश्लेषण में प्रयुक्त सूत्र

प्रस्तुत अध्ययन के अंतर्गत एकत्र किए गए सामाजिक-आर्थिक सर्वेक्षण के आँकड़ों का विश्लेषण निम्नलिखित अर्थशास्त्रीय सूत्रों का प्रयोग करते हुए निष्कर्ष प्राप्त किए गये ।

गतिविधियाँ:

- 19 जिलों में गोंद संग्रहण किया जाना पाया गया ।
- 19 जिलों में-शिवपुरी, टीकमगढ़, श्योपुर, सतना, देवास, दमोह, अशोकनगर, ग्वालियर, खण्डवा, उमरिया, मंडला, मुरैना, बुरहानपुर, डिंडौर, छिन्दवाड़ा, बैतूल, सिहोर, अनूपपुर एवं रीवा सम्मिलित है ।

- परियोजना के तहत सामाजिक आर्थिक सर्वेक्षण एवं मध्यप्रदेश के गोंद व्यापारियों से प्राप्त जानकारी और ऑकड़ों के विश्लेषण से विभिन्न प्रजातियों के गोंद वृक्षों से कुल 58638.37 किंवाटल गोंद उत्पादन / संग्रहण का ऑकलन प्राप्त हुआ ।
- विभिन्न जिलों में अलग-अलग गोंदों की प्रचलित कीमत के अनुसार लगभग कुल रु. 6661.82 लाख आय प्राप्त होने का ऑकलन किया गया है ।
- मध्यप्रदेश में सर्वाधिक 32595.38 किंवा. सलई गोंद तथा सबसे कम 27.30 किंवा. अचार गोंद उत्पादन / संग्रहण का ऑकलन प्राप्त हुआ ।
- 15 जिलों में गोंद संग्रहण नहीं किया जा रहा है । जिसका प्रमुख कारण गोंद वृक्षों का नष्ट होना एवं अन्य वैकल्पिक रोजगार है ।
- मध्यप्रदेश में गुग्गल गोंद का संग्रहण केवल मुरैना जिले से, साजा गोंद का संग्रहण शिवपुरी एवं डिंडौरी जिले से एवं अचार गोंद का डिंडौरी जिले से किया जाता है । इसी प्रकार गुर्जा गोंद का संग्रहण श्योपुर, सतना व मंडला जिलों से किया जाता है ।
- सलई, धावड़ा, कमरकस, खैर, गुर्जा एवं बबूल गोंद का संग्रहण व विपणन कार्य किया जा रहा है ।
- वर्ष 2002-03 तक 34 जिलों से 11 प्रजातियों के गोंद का संग्रहण व विपणन होता था परन्तु वर्ष 2015-16 तक यह घटकर 8 प्रजातियों का केवल 19 जिलों तक सीमित रह गया है ।
- गुग्गल, अचार एवं बबूल के क्षेत्र एवं मात्रा दोनों सिमट गये हैं ।
- मध्यप्रदेश में प्रति व्यक्ति कुल गोंद की औसत संग्रहण मात्रा 0.318 किंवा. है ।
- प्रति व्यक्ति गोंद से कुल औसत आय रु. 0.063 लाख पायी गयी ।
- शिवपुरी, टीकमगढ़ एवं श्योपुर जिलों से प्रदेश में 79 प्रतिशत का उत्पादन होता है ।
- सतना, देवास, दमोह, अशोकनगर, ग्वालियर, खण्डवा, उमरिया एवं मंडला जिले से कुल गोंद का 15.04 प्रतिशत गोंद का उत्पादन होता है ।
- मुरैना, बुरहानपुर, डिण्डोरी, छिन्दवाड़ा, बैतूल, सिहोर, अनूपपुर एवं रीवा जिले से 5.15 प्रतिशत गोंद का उत्पादन होता है ।
- लगभग 90 प्रतिशत संग्राहक प्रसंस्करण, ग्रेडिंग, शुद्धता, भण्डारण एवं मूल्य संवर्द्धन जैसी कोई प्रक्रिया नहीं अपनाते ।
- शिवपुरी एवं श्योपुर जिलों के थोक एवं निर्यातक व्यापारी धावड़ा, खैर, कमरकस एवं बबूल गोंद की सफाई करवा गोंद के रंग अनुसार उसका श्रेणीकरण करते हैं ।
- अराष्ट्रीयकृत गोंद का क्रय-विक्रय खुले बाजार में निजी क्षेत्र के स्थानीय से लेकर थोक व्यापारियों तथा संग्राहकों, संग्राहकों एवं स्थानीय फुटकर व्यापारियों, फुटकर व्यापारियों एवं थोक व्यापारियों, थोक व्यापारियों एवं औद्योगिक इकाइयों के मध्य सम्पन्न किया जाता है ।
- राष्ट्रीयकृत गोंद का बाजार भाव मध्यप्रदेश शासन द्वारा निर्धारित किया जाता है, जबकि अराष्ट्रीयकृत गोंद का बाजार भाव जिला एवं मंडी स्तर पर भाव थोक व्यापारियों द्वारा गोंद की मांग / आपूर्ति, उत्पादन को ध्यान में रखते हुए गोंद की गुणवत्ता के अनुसार माल देखकर स्थल पर भुगतान किया जाता है ।
- मध्यप्रदेश में गोंद की प्रमुख मंडी शिवपुरी, श्योपुर, ग्वालियर, इन्दौर एवं नीमच है ।
- मध्यप्रदेश से बाहर गोंद को खारी बावली दिल्ली, हैदराबाद, मुम्बई, राजस्थान, बैंगलोर एवं चेन्नई जैसे शहरों के व्यापारियों एवं फार्मास्युटिकल कम्पनियों को विक्रय करते हैं ।

गोंद उत्पादन एवं संग्रहण में कमी के कारण:

- अनियमित एवं असमय वर्षा, कोहरा एवं शीत की वृद्धि से गोंद की गुणवत्ता में कमी ।

- सूखा के कारण गोंद के स्त्राव में गिरावट ।
- तापमान एवं वर्षा में विपरीत संयोग के कारण गोंद के स्त्राव में कमी ।
- टेपिंग वाले वृक्षों में कीटाणुओं का आक्रमण ।
- जलाऊ एवं घरेलू उपयोग के लिए पेंडो की कटाई तथा पौधों के पुनरुत्पादन में कमी ।
- गोंद में अधिक स्त्राव के लिए अनियंत्रित हानिकारक रसायनों के प्रयोग में वृद्धि ।
- अन्य क्षेत्रों में गोंद की अपेक्षा मजदूरी अधिक मिलने के कारण विस्थापन ।
- अकाल आदि के कारण सीमावर्ती जिलों में कृषि कार्य व मजदूरी के लिए आदिवासियों का प्रवास ।
- मनरेगा व निर्माण क्षेत्र में श्रमिकों की अधिक मांग तथा जोखिम रहित आकर्षक मजदूरी ।
- शासकीय सुविधाओं जैसे –वृद्धावस्था पेंशन, मिड डे मील, शासकीय अनुदान पर प्रतिमाह मिलने वाला राशन से आवश्यकता की पूर्ति ।
- शिक्षा का प्रचार-प्रसार, गाँवों में बुनियादी सुविधाओं का विस्तार, बच्चों की पढ़ाई को प्राथमिकता, नई पीढ़ी की श्रमसाध्य कार्यों के प्रति उदासीनता आदि कारणों से गोंद संग्रहण में निरन्तर गिरावट आती जा रही है ।

सुझाव

- कुल्लू गोंद के विदोहन पर कम से कम 5 वर्ष के लिए प्रतिबंध लगाये जाने की आवश्यकता है । इस दौरान गोंद प्रजाति के वृक्ष कुल्लू, धावड़ा, के रोपण को बढ़ाने पर ध्यान दिया जाना चाहिए ।
- गैर कृषि योग्य पड़त भूमि में जलवायु के अनुसार बबूल, कुल्लू, करधई, धावड़ा के पौधे क्षेत्रीय अनुसंधान एवं विस्तार केन्द्रों की रोपणियों में तैयार कर स्थानीय लोगों को उनकी कृषि भूमि के मेड़ों तथा उन्हे खेती के लिए दी गयी वन भूमि के मेड़ों पर रोपण के लिए उपलब्ध कराये जाने चाहिए । साथ ही गोंद वाले वृक्षों से होने वाली आय के बारे में उन्हे जानकारी प्रदान की जानी चाहिए ।
- प्रदेश में कृषकों की आय बढ़ाने के क्रम में कृषि भूमि में एक निश्चित दूरी पर कुल्लू के पौधों को रोपित करने के लिए प्रोत्साहित किया जाना चाहिए । उन्हे खेत के मेड़ों पर कुल्लू तथा अन्य गोंद उत्पादक वृक्षों के पौधों के रोपण करने में आने वाली लागत एवं आय का ऑकलन कर, गोंद विदोहन की विधि, प्रसंस्करण, मूल्य संवर्धन आदि की पूर्ण जानकारी से अवगत कराया जाना चाहिए । इससे कृषकों को भविष्य में मिलने वाली आय एवं रोजगार का ज्ञान होने से रोपण की प्रेरणा प्राप्त होगी ।
- आदिवासियों को गोंद के विदोहन, प्रसंस्करण, मूल्य संवर्धन का समय-समय पर प्रशिक्षण देकर एक निश्चित अंतराल में उनके अनुश्रवण एवं मूल्यांकन का कार्य करना चाहिए ।
- धावड़ा के वृक्षों का सबसे अधिक नुकसान जंगलों के बीच एवं जंगल की सीमा से सटे गाँवों में रहने वाले आदिवासियों के द्वारा पहुँचाया जाता है । आदिवासी धावड़ा के वृक्षों को काटकर न केवल जलाऊ के लिए प्रयोग करते हैं अपितु झोपड़ी, बाड़ी तैयार करने में आवश्यकता से अधिक बल्लियों का प्रयोग करते हैं । अतः इस स्थिति पर सतत निगरानी रखने एवं रोक लगाने की आवश्यकता है ।
- जंगल में गोंद के वृक्षों से गोंद के विनाश विहीन विदोहन एवं रख-रखाव के लिए अन्य जिलों में भी शिवपुरी-श्यापुर मॉडल (सलई वृक्षों से गोंद विदोहन के लिए) को प्रोत्साहन दिया जाना चाहिए । अर्थात् जंगल के समीपस्थ गाँवों के संग्राहकों को वृक्षों का स्वामित्व सौंप देना चाहिए जिससे इनकी सुरक्षा बनी रहे । वृक्षों की सुरक्षा का दायित्व संभालने के इच्छुक एवं योग्य व्यक्तियों का चयन स्थानीय वन विभाग के अमले की निगरानी में एक योजनावद्ध तरीके से किया जा सकता है ।



गोंद संग्राहकों का सामाजिक आर्थिक सर्वेक्षण, शिवपुरी



पलाश गोंद का प्रसंस्करण करती महिलाएं, अशोकनगर

2. सलई गोंद संग्रहण प्रशिक्षण : मध्यप्रदेश में गोंदों का सतत् विदोहन, प्रसंस्करण, श्रेणीकरण, भण्डारण, पैकेजिंग एवं विपणन की वैज्ञानिक तकनीक।

गतिविधियाँ:

- सामान्य वन मंडल देवास, बुरहानपुर एवं श्योपुर वनमंडल द्वारा सलई गोंद संग्रहण प्रशिक्षण के लिए चयनित मास्टर ट्रेनर्स को प्रशिक्षण देने का कार्य किया गया। तीनों वनमंडलों से कुल 222 प्रशिक्षणार्थियों को मास्टर ट्रेनर्स के रूप में प्रशिक्षित किया गया। जिसमें देवास वनमंडल में कुल 90 (74 संग्राहक, 16 वन विभाग के अधिकारी/कर्मचारी), बुरहानपुर वनमंडल में कुल 68 (38 संग्राहक, 30 वन विभाग के अधिकारी/कर्मचारी) एवं श्योपुर वनमंडल में कुल 64 (35 संग्राहक, 29 वन विभाग के अधिकारी/कर्मचारी) सम्मिलित है।

प्रशिक्षणार्थियों को प्रदाय की गई तकनीकी जानकारी :-

- सलई वृक्ष से निकलने वाली राल, गोंद, उपयोग, महत्व, आवश्यकता एवं उससे होने वाले लाभ।
- सलई वृक्षों में वैज्ञानिक विधि द्वारा टैपिंग सैद्धान्तिक एवं व्यावहारिक जानकारी।
- प्रसंस्करण, श्रेणीकरण, भण्डारण एवं पैकेजिंग की वैज्ञानिक तकनीक का सैद्धान्तिक एवं प्रदर्शन के द्वारा व्यावहारिक जानकारी।
- वैज्ञानिक विधि से सही टैपिंग के लिए उपयुक्त वृक्ष एवं उपयुक्त समय की जानकारी एवं जंगल में सलई वृक्षों को क्षति पहुँचाने वाली आग, दीमक व अन्य कीटों से कैसे सुरक्षित रखा जाए, के बारे में जानकारी।

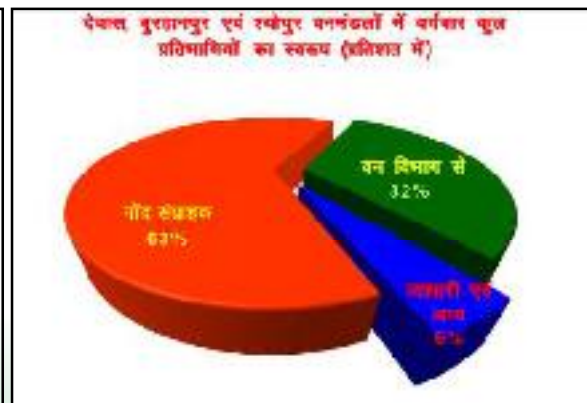
- सलई वृक्षों से गोंद निकालने एवं उसके प्रसंस्करण आदि के लिए आवश्यक उपकरणों एवं उनके महत्व व प्रयोग विधि की जानकारी ।
- सलई गोंद के विपणन व्यवस्था में सूचनाओं के आदान-प्रदान, बाजार व्यवस्था, विपणन विधि, विपणन का उपयुक्त समय, विपणन में ध्यान रखने योग्य बातें एवं सावधानियां तथा बाजार में प्रचलित गोंद की कीमत, प्रतिस्पर्धा, मांग-पूर्ति, कीमतों में कमी-वृद्धि के कारण आदि जानकारियों से प्रशिक्षणार्थियों को अवगत कराया गया ।
- वन विभाग के प्रशिक्षणार्थियों की सलई वृक्षों के संरक्षण में महत्वपूर्ण भूमिका का ध्यान रखते हुए उन्हें सलई वृक्षों के संरक्षण, देख-रेख, नए वृक्षों की संख्या बढ़ाने में उनकी भूमिका, विधि के बारे में जानकारी ।
- प्रशिक्षण में मास्टर ट्रेनर्स के रूप में सम्मिलित गोंद संग्राहकों एवं वन विभाग के स्थलीय अधिकारियों / कर्मचारियों से सामूहिक चर्चा द्वारा सलई वृक्षों की टैपिंग, गोंद निकालना, प्रसंस्करण, श्रेणीकरण, भण्डारण, पैकेजिंग एवं परिवहन आदि विषयों पर परस्पर सामूहिक चर्चा द्वारा वर्तमान स्थिति, समस्याएं एवं उनके समाधान के बारे में विशेषज्ञों के सुझाव से संबंधित जानकारियाँ ।
- प्रशिक्षणार्थियों के जंगल भ्रमण द्वारा मौके पर सलई वृक्षों में टैपिंग, गोंद संग्रहण विधि, टैपिंग के पश्चात् वृक्षों की सुरक्षा के लिए आवश्यक सावधानी, सलई वृक्षों में अप्राकृतिक टैपिंग से होने वाली हानियों का मौके में उपलब्ध दृश्यों से परिचित कराते हुए उनको रोकने के उपायों की जानकारी ।



जंगल में सलई वृक्ष की टैपिंग का व्यावहारिक प्रशिक्षण एवं प्रदर्शन



सलई गोंद के प्रसंस्करण एवं श्रेणीकरण का कार्य



3. EXTENSION, TRAINING AND CONSULTANCY

Mandate

1. Dissemination of forestry research technologies evolved by the institute.
2. To act as a nodal agency for co-ordination and extension activities.

Activities

- Publication of Annual Research Report, Annual Action Plan of the institute and training modules.
- Organization of trainings, workshops, meetings, seminars and conferences.
- Participation in 'Kissan Mela', 'Herbal Fairs' and public events.
- Preparation of information related to Madhya Pradesh Vananchal Sandesh, Annual Administrative Report, Annual Statistical Report and informations pertaining to extension of activities of the institute for the M.P. Forest Department.
- Providing logistic support of xeroxing audio visual equipments, public address system, binding of research documents and co-ordination with different branches to research projects.
- Providing desired information to the users through correspondence, consultancy and visits.
- Providing I.D. nos. to all research projects, compilation of information of research projects of the institute for periodical monitoring of their progress.

Dissemination of information through publications

a. Annual Action Plan

The Annual Action Plan of the institute for the year 2017-18 was compiled and prepared on quarterly basis from April 2017 to March 2018 and progress of the works were monitored and evaluated by conducting review meetings of each branch after the end of each quarter.

b. Annual Research Report

The Annual Research Report for 2016-17 was prepared, published, and disseminated to all the stakeholders.

c. Dissemination of research technologies and strengthening of extension linkages



Exposure visit of trainee forest rangers from Karnataka & Tamilnadu Forest Academy

Trainee Forest Range Officers posted in various forest divisions of M.P. and forest guards from Forestry Training School Panchmarni, Lakhnadon, Shivpuri and Betul visited the institute during the year as a part of their course curriculum. Trainee Forest Range Officers from Karnataka and Tamilnadu State Forest Academy also visited the institute for an exposure of the forestry research. They were acquainted with the research activities of the institute by class room lectures and visit to various laboratories, mist chambers, shade net houses, gene bank, botanical garden, nurseries, museum and herbarium, located in the campus.

Organization of Seminar :



A National Seminar on "Climate Change & Role of Communities for Adaptation and Mitigation" was organized in the institute on 18-19th September, 2017. The seminar was attended by scientists & researchers, forestry professionals. 60 research papers were presented alongwith poster presentations focusing on climate change.



Participation of Officers & Scientist in the 19th Commonwealth Forestry Conference at Dehradun

Director, SFRI, Jabalpur, Scientists and Senior Research Officers participated in the 19th Commonwealth Forestry Conference organized at Forest Research Institute, Dehradun. On this occasion research paper were represented in various technical sessions. A stall of the institute was put up on this occasion wherein the publications of the institute technical bulletins reports and activities of the institute were highlighted by banners and posters.

Ongoing Project :

Externally Funded: One

1. **Knowledge up-gradation and skill development of field foresters, forest dependent communities and resource persons through lab to land training modules.**

Training Programme:

To acquaint the field foresters and forest dependent communities with an objective to transfer technology from lab to land training programmes were organized to upgrade the knowledge base and skill development. 5 training cum demonstration programmes were organized at SFRI, Jabalpur on seed technology, seed production and nursery management. 237 trainees participated in the training programmes.



Classroom Lecture



Field Demonstration

Capacity building and human resource management:

6 technical persons were sent to various National Institutes to upgrade their knowledge and skill development. 2 technical persons went to Wildlife Institute of India, Dehradun for undertaking training on MSTRIPES and two research scholars undertook training on ecological research PRIMER in Kugal Kumta, Karnataka. Further two laboratory technician were deputed at ICAR, New Delhi to participate in the workshop on Advanced level training in soil testing, plant analysis and water quality assessment.

Workshop on All India Tiger Estimation



Realese of technical bulletin of the institute



Addl. Chief Secretary (Forests)
Govt. of M.P. addressing the audience

A workshop on All India Tiger Estimation was organized on 30th Dec. 2017 for the field foresters engaged in the tiger census of 2018. The equipments to be used in tiger estimation, methodology of survey of carnivores techniques of data entry of survey by using android app and use of software for analysis of data of camera trap were discussed in the workshop. The workshop was attended by 100 participants.

Inauguration of the Museum of the institute



Inauguration of the museum of SFRI by Hon'ble Forest Minister, Government of M.P.

The inauguration of the museum of SFRI "Aranya Vithika" was done by Hon'ble Forest Minister Dr. Gaurishankar Shejwar, Government of M.P. on 24/02/2018. The museum has been prepared to impart education and knowledge to the foresters and public at large regarding the activities of SFRI by various models, posters and photographs. The museum also displays fossils, wooden planks of different species, sal borer life cycle alongwith touch screen panels with information about various NTFPs and medicinal plants species.

Organization of Meetings:

S. No.	Meeting	Place	Date of organization
1.	31 st meeting of Board of Governors	Bhopal	17 th January, 2018
2.	43 rd meeting of Research Advisory Committee	Bhopal	12 th June, 2017
3.	मध्यप्रदेश स्टेट माइनिंग कारपोरेशन लि. द्वारा विभिन्न जिलों में रेत खनन क्लस्टर के अन्तर्गत प्रस्तावित रेत खदानों का पर्यावरण प्रभाव मूल्यांकन एवं पर्यावरणीय प्रभाव प्रबंधन	Bhopal	17 th December 2017
4.	Research Review Meeting by ACS, Forest, Govt. of M.P.	SFRI, Jabalpur	29 th June 2017
5.	Meeting for NABL Accreditation of SFRI, Jabalpur	SFRI, Jabalpur	1 st Sept. 2017 to 5 th Sept. 2017
6.	Quarterly Review Meeting of progress of ongoing research projects	SFRI, Jabalpur	20 th July 2017, 14 th Dec. 2017
7.	Internal Audit Meeting of ISO second surveillance	SFRI, Jabalpur	11 th Dec. 2017
8.	GIM / ESIP project formulation meeting	SFRI, Jabalpur	7 th March 2018
9.	Meeting of RCFC central region for planning of activities	SFRI, Jabalpur	23 rd March 2018
10.	5 th Coordination Committee Meeting of Network Project on Lac Conservation	Ludhiana	14-15 Nov. 2017
11.	Meeting with Member (Environment and Rehabilitation), NCA Ministry of Water Resources regarding NVDA project	SFRI, Jabalpur.	5 th September & 4 th October, 2017
12.	Review meeting of NVDA Project with Member (Environment and Rehabilitation), NCA Ministry of Water Resources and PCCF Maharashtra and their team Senior Officers from Gujarat.	SFRI, Jabalpur.	19 th January, 2018
13.	Review meeting with PCCF (Research & Training) M.P. on regarding progress of the research projects.	SFRI, Jabalpur	21 st February, 2018

Participation in Fairs:

S. No.	Event	Date	Place
1	International Herbal fair (Van Mela)	13 to 22 Nov. 2017	Bhopal
2.	Vigyan Mela	03.03.2017	Bhopal
3.	Kisan Mela	03 to 04 March 2017	JNKVV, Jabalpur

Organization of Seminar / Symposiums / Workshop :

S. No.	Topic	Organized by	Date	Participants
1.	National Seminar on "Climate change and role of communities for adaptation and mitigation" MPCDM Agency, Bhopal, organized at SFRI on 18 -19 Sept. 2017	SFRI, Jabalpur Funded by MPCDM Agency, Bhopal	18 th -19 th Sept. 2017	Approx. 250

2.	Work Shop on "Research Project Formulation" by Dr. Navin Sharma Amity University NCR	Forest Genetics Plant Propagation & Biotechnology Division, SFRI, Jabalpur	14 th Aug. 2017	80
3.	Workshop on "International Tiger Day"	Wildlife Branch, SFRI Jabalpur	29 th July 2017	50
4.	Workshop on Wildlife Week on Theme "Securing the Future, Start Young"	Wildlife Branch, SFRI Jabalpur	7 th Oct. 2017	75
5.	Workshop on Handholding exercise for online submission of Annual Plan of operations (2018-19) for tiger reserves in APO application of National Tiger Conservation Authority	NTCA, MP Forest Department, Orissa Forest Department & SFRI, Jabalpur	21 st - 22 nd March, 2018	35 including officers and staff of SFRI

Organisation of Trainings :

S.No.	Name of the programme	Organized by	Date	Organized for	Name / No. of participants
1.	औषधीय पौधों का वन क्षेत्र में संसाधन सर्वेक्षण	Biodiversity Branch, SFRI Jabalpur	5 th , 6 th , 7 th Dec. 2017	निवास, कालपी, बरेला, बीजाडाडी, टिकरिया, मण्डला, महाराजपुर, बम्हनी वन परिक्षेत्र पश्चिम मण्डला, वन मण्डल	260
2.	औषधीय पौधों का वन क्षेत्र में संसाधन सर्वेक्षण	Biodiversity Branch, SFRI Jabalpur	11 th , 12 th , 13 th Dec. 2017	दीमरखेड़ा, बड़वारा, कटनी, विजयराघवगढ़, रीठी, बहोरीबंद वन परिक्षेत्र, कटनी	261
3.	औषधीय पौधों का वन क्षेत्र में संसाधन सर्वेक्षण	Biodiversity Branch, SFRI Jabalpur	18 th , 19 th , 20 th , 21 th Dec. 2017	शहपुरा, पाटन, पनागर, सिहोरा, जबलपुर, कुण्डम, बरगी वन परिक्षेत्र, जबलपुर	294
4.	Training on "Establishment, Maintainance and periodic measurement of sample plots.	Forest Mensuration Branch, SFRI, Jabalpur	5 th July 2017	Forest guards from Balaghat training school. IFS probationers from Narsinghpur, North Panna, Harda, Raisen and South Chhindwara forest divisions.	29 5
5.	Plant Biotechnology/ Plant Tissue Culture Training/dissertation Programme	Genetics & Plant Propagation Branch, SFRI, Jabalpur	April 2017 to March 2018	Under Graduate, Post Graduate, and self motivated students.	62

6	Training and demonstration programme on collection of quality seed to seed collectors (Beej Mitra)	Seed Technology Branch, SFRI, Jabalpur Ext/P/E/16-17/17	10 th Oct. 2017	VFC members engaged in seed collection work of various divisions (Beej Mitra).	135
7	Training and demonstration programme on seed technology establishment and management of seed production areas and basics of nurseries	Seed Technology Branch, SFRI, Jabalpur Ext/P/E/16-17/17	12 th Oct. 2017	Field foresters of R & E and Van Vikas Nigam of MP Forest Department	91
			16 th Nov. 2017 to 17 th Nov. 2017		62
			23 th Jan. 2018 to 24 th Jan. 2018		57
			15 th Feb 2018 to 16 th Feb 2018		29
8	Training and demonstration programme on Mahua flower production, collection, processing, storage & transportation	Seed Technology Branch, SFRI, Jabalpur	12 th March 2018	Mahua flower collectors and managers of North Shahdol Forest Division.	55
			13 th March 2018	Mahua flower collectors and managers of South Shahdol Forest Division	60
			14 th March 2018	Mahua flower collectors and managers of Umaria Forest Division	66
			15 th March 2018	Mahua flower collectors and managers of Anuppur forest division	57
			2 nd April 2018	Mahua flower collectors and managers of Alirajpur forest division	60
			17 th April 2018	Mahua flower collectors and managers of Alirajpur forest division	61
			6 th May 2018	Mahua flower collectors and managers of Mandla forest division	35
			7 th May 2018	Mahua flower collectors and managers of Sidhi forest division	55
			8 th April 2018	Mahua flower collectors and managers of Singhrauli forest division	54

			27 th April 2018 to 28 th April 2018	Mahua flower collectors and managers of Satna forest division	64
9	Training and demonstration programme on site selection, site preparation, seed collection, seed sowing and seed treatment for establishment of energy plantation.	Seed Technology Branch, SFRI, Jabalpur Ext/P/E/16-17/17	23 th May 2018 to 24 th May 2018	Field foresters of Seoni, Mandla and Jabalpur division	29
10	Training and demonstration on seed technology	Seed Technology Branch, SFRI, Jabalpur Ext/P/E/16-17/17	(5 th June 2017, 13 th June 2017, 13 th June 2017, 3 rd July 2017, 10 th Nov. 2017, 24 th Nov. 2017, 18 th Dec. 2017, 21 st Dec. 2017, 24 th Nov. 2017, 9 th Jan. 2018, 17 th Jan. 2018, 19 th Jan. 2018, 2 nd Feb. 2018)	Field foresters of Balaghat, Sidhi, Satna, Rewa and Dindori divisions	516
11	Lac cultivation by scientific method	Social Economics and Marketing Branch	7 th Jan. 2017	Lac cultivators of Chauri (Madosa)	23
			8 th Jan. 2017	Lac cultivators of Banoda (Umariya)	28
			11 th Jan. 2017	Lac cultivators of Nandiya (Pipariya) Hosangabad	24
			18 th Nov. 2017	Lac cultivators Damoh	15
			17 th Oct. 2017	Lac cultivators of Haldi gram Shahdol	18
			12 th Jan. 2018	Lac cultivators of Gram Sukhari Niwas Mandla	17
			12 th Jan. 2018	Lac cultivators of Gram Jabaida Niwas Mandla	23
12	Training Workshop at Pench Tiger Reserve on Camera Trap techniques	Wildlife Branch, SFRI, Jabalpur	27 th April 2017	Frontline Forest Staff of Pench Tiger Reserve	50
13	Training on "Capacity building of forest staff of Madhya Pradesh on Wildlife Population Monitoring Techniques"	Wildlife Branch, SFRI, Jabalpur	17 th -19 th May 2017	Frontline Forest Staff of Panna TR, Chhatarpur, South Panna, North Panna, Nouradehi WLS, Veerangana Durgawati, North Sagar, South Sagar, Damoh, Satna (Total 10 Territorial Divisions/P As)	33

			23 rd - 25 th May, 2017	Frontline Forest Staff of Narshingarh, Kheoni, Sailana, Gandhisagar, Dewas, Khandwa, Omkareshwar Wildlife Division, Neemach, Mandsaur, Rajgarh, Khargone, Shajapur, Indore, Badwah, Ratlam, Ujjain, Burhanpur, Sendhwa, Barwani, Alirajpur, Dhar & Jhabua (Total 22 Divisions/ P As)	64
			29 th -31 st May, 2017.	Frontline Forest Staff of Pench TR, Barghat Project, East Chindawara, South Chindwara, South Seoni, West Chindwara, Narshingpur, North Betul, South Betul, North Seoni (Total 10 Divisions/ P As)	38
			5 th – 7 th June, 2017.	Frontline Forest Staff of Satpura TR, Hoshangabad, Harda, Ratapani WLS, Singhori WLS, West Betul, Bhopal, Rampur-Bhatori Project, Sheore, Obedullaganj, Vidisha, Raisen (Total 12 Divisions/P As)	29
			3 rd – 5 th July, 2017.	Frontline Forest Staff of Bandhavgarh TR, Sanjay TR, South Shadol, Umaria, Anuppur, Dindori, Katni, Bagdara WLS, North Shadol, Umaria Project, East Sidhi, West Sidhi, Rewa (Total 13 Divisions/PAs)	24

			10 th – 12 th July, 2017.	Frontline Forest Staff of Kuno-Palpur WLS, Ghatigaon, Madhav NP, Morena, Shivpuri, Gwalior, Sheopur. Orcha WLS, Tikamgarh, Ashok Nagar, Guna, Bhind, Datia (Total 13 Divisions/ P As)	40
			21 st – 23 rd July, 2017	Frontline Forest Staff of Kanha TR, North Balaghat, South Balaghat, East Mandla, West Mandla, Lamta Project, Mohongaon-Nainpur Project, Jabalpur, Kundam Project (Total 9 Divisions/ P As)	33
			4 th – 6 th January, 2018	Frontline Forest Staff of 11 divisions/tiger reserve/corporation of Kanha TR, Pench TR, Mohongaon-Nainpur Project, South Seoni, West Betul, Sanjay TR, Satna, Narshingpur, Kundam, Dewas, Sidhi	40
			7 th – 9 th January, 2018	Frontline Forest Staff of 11 divisions/tiger reserve/corporation of Bandhavgarh TR, Satpura TR, Panna TR, Kuno-Palpur WLS, Madhav NP, Ashok Nagar, Indore, Barwani, North Balaghat, East Mandla, West Chindwara	37

			10 th -12 th January 2018	Frontline Forest Staff of 11 divisions/tiger reserve/corporation of North Betul (Including Rampur-Bhatori), Obedullaganj, , Sehore, North Shadole, Ratlam, Khandwa, Ratlam, Hoshangabad, Rajgarh, Umaria, Chatarpur, Tikamgarh	33
			13 th -15 th January, 2018	Frontline Forest Staff of 11 divisions/tiger reserve/corporation of South Panna, Gwalior, Datia, Mandsoor, Soth Balaghat, Lamta Project, South Betul, Vidisha, Bhopal, South Chindwara, Anuppur	33
			17 th -19 th January, 2018	Frontline Forest Staff of 11 divisions/tiger reserve/corporation of Umariya Project, Nouradehi Wildlife Division, Damoh, Sheyopur, Guna, Nemuch, Khandwa Project, Khargone, Burhanpur, West Mandla, Singrouli	60
			20 th -22 th January, 2018	Frontline Forest Staff of 11 divisions/tiger reserve/corporation of Jabalpur, Dindori, North Seoni, East Chindwara, Barghat Project, Raisen, Harda, Katni, Rewa, Soth Shadole, South Sagar	52

			23 rd -25 th January, 2018	Frontline Forest Staff of 11 divisions/tiger reserve/corporation of North sagar, Shivpuri, Morena, Dhar, Jhabua, Alirajpur, Barwah, Sendhwa, North Panna.	44
14	Workshop on All India Tiger Estimation for Jabalpur Circle	Wildlife Branch, SFRI, Jabalpur	30 th December 2017	CCF, DFO, ACF, Range Officers of Jabalpur Division	50

Trainings / Workshops / Meetings attended by officers/scientists and Research Staff of the Institute.

S.N.	Name of the programme	Organized by	Date	Participants
1.	Two days International Conference on Awareness and Dissemination of Traditional Knowledge for Sustainability of NTFP resources.	M.P. M F.P. Bhopal International Herbal Fair, Bhopal	13 th to 22 nd Nov. 2017.	Dr. Uday Homkar
2.	National workshop on "Entrepreneurship Development through cultivation, processing and value addition of MAPs and NTFP"	Indira Gandhi Krishi Vishwavidyalaya, Raipur	7 th -8 th March, 2018	Dr. S. K. Masih
3.	Work Shop on Research project formulation, by Professor Navin Sharma, Senior Fellow world Agroforestry Centre Nairobi (Kenya) & Director Research, Amity University, NCR	SFRI, Jabalpur	14 th Aug. 2017	Dr. S.K. Tiwari & Research Scholars Dr. P. Chaturvedi Richa Seth Dr. A.K. Sharma
4.	National Seminar on "Climate Change and Role of Communities for Adaptation and Mitigation"	SFRI, Jabalpur	18 th Sept. 2017 to 19 th Sept. 2017	Dr. P. Chaturvedi Dr. A.K. Sharma Dr Anjana Rajput Dr Mayank Verma & Research Scholars
5.	14 th Advanced Level Training in Soil Testing, Plant Analysis and Water Quality Assessment	Division of Soil Science and Agricultural Chemistry ICAR- Indian Agricultural Research Institute, New Delhi	08 th Dec. 2017 to 28 th Dec. 2017	Vinay Kumar Kori & Sonu Kumar Sahu
6.	8 th K.P. Sagreiya Memorial Lecture "Who Owns the World's Forests and why it is Important: Global Tenure Trends and Imperatives with Special Reference to India"	SFRI, Jabalpur	19 th Feb. 2018	Dr. Archana Sharma Dr. P. Bhatnagar Dr. S.K. Tiwari Dr. Pr. Chaturvedi Richa Seth Dr. O.P. Chaubey Dr. Sachin Dixit Dr. A.K. Sharma Dr. Suresh P. Charmkar

7.	Visit to National Bureau of Soil Survey & Land Use Planning, Nagpur.	National Bureau of Soil Survey & Land Use Planning, Nagpur.	7 th Feb. 2018 to 9 th Feb. 2018	Dr. Pratiksha Chaturvedi, Vinay Kumar Kori & Sonu Kumar Sahu
8.	National Seminar on "Climate Change and Role of Communities for Adaptation and Mitigation"	SFRI, Jabalpur	18 th -19 th Sept. 2017	Dr. O.P. Chaubey Dr. Sachin Dixit, Dr. Suresh Charmkar
9.	XIX Commonwealth Forestry Conference at Forest Research Institute, Dehradun, India	ICFRE, Dehradun	3 rd -7 th April, 2017	Dr. Jyoti Singh Anirudhwa Sarkar, K.L. Verma, Shailendra Nema
10.	Laboratory quality management system and external audit as per ISO/IEC 17025 - 2005	National Management Training Institute, Nagpur	11 th Dec. 2017	Dr. Archana Sharma Smt. Anju Kathel, JRF
11.	Accreditation of laboratory under NABL	SFRI, Jabalpur	1 st Sept. 2017 to 5 th Sept. 2017	Dr. Archana Sharma
12.	Lac cultivation training workshop	IINRG, Ranchi	19 th Feb. 2018 to 25 th Feb. 2018	Ramdeen Bhalavi, Balram Lodhi
13.	43 rd Research Advisory Committee Meeting, Bhopal.	SFRI, Jabalpur	12 th June, 2017	Dr. Anjana Rajput Dr. Mayank Verma
14.	Meeting with Member Secretary, NVDA at Bhopal to discuss the progress of the project and site selection of study area at NVDA, Bhopal.	NVDA & SFRI	17 th August, 2017	Dr. P.K. Shukla Mr. G.P. Verma Dr. Dharmendra Verma Mr. Ashis Varma Dr. Anjana Rajput Dr. Mayank Verma Dr. Aniruddha Majumder
15.	One day workshop cum training on CATS- Conservation Assured Tiger Standards M.P. Forest Department.	MP Forest Department, GTF, WWF	2 nd Aug., 2017	Dr. Dharmendra Verma Dr. Anjana Rajput Dr. Mayank Verma Dr. Aniruddha Majumder
16.	Participated in Seminar on "Wildlife Management in Madhya Pradesh"	NCBS, Bangalore.	3 rd Nov., 2017	Dr. Anjana Rajput Dr. Mayank Verma
17.	Workshop on All India Tiger Estimation 2018	Wildlife Institute of India, Dehradun and National Tiger Conservation Authority, New Delhi	30 th Oct. 2017 5 th -7 th Dec. 2017 19 th -21 st Dec., 2017	Dr. Anjana Rajput Dr. Aniruddha Majumder Mr. Bhaskar Bhandari

4. DOCUMENTATION CENTRE

Mandate

1. Documentation of research information/results.
2. Documentation of technical literature on forestry research activities of the Institute.
3. Maintenance of ledger files.
4. Providing research information to the users.

Activities

1. Maintenance of general and specific ledger files. At present, 250 general and 173 specific ledger files are being maintained. The research findings published in various journals/bulletins and reports, etc. were photocopied and added regularly in the respective ledger files.
2. Documentation of technical literature on forestry research.
3. Documentation of research articles published in different Journals, Magazines, Newsletters, Bulletins, Vaniki Sandesh, Annual Research Report and Extension series.
4. Documentation of final reports of the projects financed by external agencies.
5. Publication of quarterly journal "Vaniki Sandesh", technical bulletins and extension series.
6. Sale of SFRI publications.

A quarterly journal "Vaniki Sandesh" covering articles on forestry research in the institute and elsewhere is published by the institute. Vaniki Sandesh is circulated to officers of the state forest department, research institutes, universities and individuals. The annual subscription is fixed at Rs.150/- for individuals and Rs. 300/- for institutions.

Publications

The institute has published 6 technical bulletins, 5 extension series and 10 brochures.

Journal Section

The branch is well furnished with a reading room. During the year 16 journals were received.

Achievements during the year

1. Four issues of Vaniki Sandesh Vol. 7 No. 3-4 and Vol. 8, No. 1-4 were published.
2. 27 project reports were documented.
3. A sum of Rs. 5,130/- was received from the sale of bulletins, extension series, Vaniki Sandesh and Vandhan Vyapar.
4. 16 periodicals were received and displayed.
5. 281 articles were selected, photocopied, classified and filed into ledger files.
6. 256 damaged pages of ledger files were replaced by xerox copies.

Other significant achievements

Certificate of excellence to Mr. K.L. Verma, Senior Research Officer was awarded from Hon'ble Forest Minister on documentation works and services.

PERIODICALS SUBSCRIBED / RECEIVED DURING THE YEAR 2017-2018

Sl.No.	Name of the Journal
1.	Indian Forester
2.	My Forest
3.	Bulletin of Arunachal Forest Research
4.	मध्यप्रदेश वनांचल संदेश
5.	Me & My Earth
6.	Indian Journal of Agroforestry
7.	Journal of Economics & Taxonomic Botany
8.	Dream 2047
9.	ENVIRONEWS -Letter
10.	नीति मार्ग
11.	MLBD New Letter
12.	जंगल गाथा
13.	Economic and Political Weekly
14.	Journal of Tropical Forestry

PUBLISHED TECHNICAL BULLETINS / EXTENSION SERIES AND BROCHURES
DURING THE YEAR 2017-18

A. Technical Bulletins

Sl. No.	Title	Authors
1	Primary processing and drying techniques of NTFPs	Pratibha Bhatnagar
2	Directory of Medicinal Plants Traders and ISM Industries in Madhya Pradesh	Pratibha Bhatnagar, Alok Raikwar, Rajesh Berman
3	Selection of superior races of Khamer (<i>Gmelina arborea</i>) through clonal propagation	Dharmendra Verma, O.P. Tiwar, A.K. Sharma, Sachin Dixit
4	क्लोनल प्रोपेगेशन द्वारा खमेर (मेलार्ईना आरबोरिया) की श्रेष्ठ नस्लो (रिसेस) का चयन	धर्मेन्द्र वर्मा, ओ.पी. तिवारी, ए.के. शर्मा, सचिन दीक्षित
5	Quantitative estimation of bioactive compound through Chemo-fingerprinting (HPLC) for the identification of quality germplasm - <i>Andrographis paniculata</i> , <i>Bacopa monnieri</i> and <i>Swertia angustifolia</i>	Dharmendra Verma, S.K. Tiwari Amit Pandey
6	औषधीय पौध प्रजातियों की जबलपुर वन वृत्त के वनक्षेत्रों में वर्तमान स्थिति, संख्यात्मक घनत्व एवं उपलब्ध मात्रा का आंकलन "सर्वेक्षण एवं आंकलन मार्गदर्शिका"	S.K. Masih
7	बाघ, सह-परभक्षी, चौपायों एवं उनके वासस्थल का अनुश्रवण- 2018 हेतु मार्गदर्शिका	अंजना राजपूत

B. Extension Series

Sl. No.	Title	Authors
1	नर्मदा तट पर वृक्षारोपण हेतु उपयुक्त प्रजातियाँ एवं रोपण विधियाँ	उदय होमकर, एस.के. मसीह एवं के.एल. वर्मा
2	साल वृक्षों की मृत्युदर को प्रभावित करने वाले कारकों का अध्ययन एवं उनके रोकथाम के उपाय – मार्गदर्शिका	धर्मेन्द्र वर्मा, ज्योति सिंह एवं कृष्ण कुमार पटेल
3	आर्थिक महत्व की प्रजातियों बीजा, धावड़ा एवं अचार में होने वाले रोगों का समेकित प्रबंधन एवं तकनीक – मार्गदर्शिका	धर्मेन्द्र वर्मा, ज्योति सिंह एवं अनुपमा गोस्वामी
4	महुआ प्रशिक्षण एवं प्रदर्शन मार्गदर्शिका	अर्चना शर्मा
5	सलई वृक्ष में वैज्ञानिक विधि से टैपिंग तकनीक, सतत् विनाश विहीन विदोहन, प्राथमिक प्रसंस्करण एवं भंडारण विधि – मार्गदर्शिका	धर्मेन्द्र वर्मा एवं जी.एस. मिश्रा

C. Brochure

Sl. No.	Title	Authors
1	मृदा नमूना एकत्रीकरण विधि	प्रतिक्षा चतुर्वेदी, विनय कोरी
2	अश्वगंधा – बीज एवं रोपणी तकनीक	अर्चना शर्मा
3	कालमेघ – बीज एवं रोपणी तकनीक	अर्चना शर्मा
4	सर्पगंधा – बीज एवं रोपणी तकनीक	अर्चना शर्मा
5	जैविक खाद एवं नीम खली वानिकी प्रजातियों के पौधों की वृद्धि में लाभदायक	अर्चना शर्मा
6	कृषि वानिकी पद्धति के अंतर्गत गोहूँ के साथ क्लोनल यूकेलिप्टस रोपण : लागत एवं आय	जी.एस. मिश्रा
7	SFRI Brochure (English)	अनिरुद्ध सरकार एवं के.एल. वर्मा
8	SFRI Brochure (Hindi)	अनिरुद्ध सरकार एवं के.एल. वर्मा
9	Regional-Cum-Facilitation Centre, Central Region, Jabalpur (RCFC)	एस.के. मसीह
10	क्षेत्रीय-सह-सुविधा केन्द्र मध्य क्षेत्र, जबलपुर, ब्रोशर (आर.सी.एफ.सी.)	एस.के. मसीह

LIST OF SFRI PUBLICATIONS**1. Technical bulletins –**

S N.	Bulletin No.	Title	Year	Price
1	2	Volume Table of <i>Terminalia tomentosa</i> for M.P.	1963	70.00
2	4	Yield Table of Sal for M.P.	1966	70.00
3	5	Seed Directory Vol. I	1967	30.00
4	9	Standard Volume Table of Teak for South Chhindwara in M.P.	1971	70.00
5	10	Family <i>Ranunculaceae</i> to <i>Polygonaceae</i> in M.P. (Monograph of 13 family)	1971	25.00
6	11	Teak growth tables of different ecological forest types in M.P.	1971	70.00
7	12	Standard volume tables of <i>Boswellia serrata</i> for Nimar tract in M.P.	1971	70.00
8	15	Bark Table for <i>Boswellia serrata</i>	1971	25.00

9	16	Family <i>Linaceae</i> to <i>Berseraceae</i>	1974	25.00
10	18	Species for plantation in M.P. (Reprint)	1977	100.00
		मध्यप्रदेश में वृक्षारोपण के लिये उपयुक्त प्रजातियाँ	1977	100.00
11	22	Bamboo Plantation	1986	50.00
12	23	Fuelwood removal by headloads- A case study of Jabalpur	1987	20.00
13	24	Eucalyptus cultivation in M.P.	1987	25.00
14	26	Socio-economic Potential of Minor Forest Produce in M.P.	1991	75.00
15	28	Material for forest flora of Madhya Pradesh	1996	150.00
16	29	Tissue culture protocols for Teak, Neem & Khamer	1997	150.00
17	30	Growth statistics of forest plantations	1997	75.00
18	31	Medicinal plant of M.P. distribution, cultivation & trade	1998	200.00
19	32	Local Volume Table for Teak, Sal and other species	1997	60.00
20	33	Price Trends of some medicinal plants	1998	80.00
21	34	Biological Diversity of SFRI premises	1998	50.00
22	35	Seed production in Teak Seed Orchards in M.P.	1998	100.00
23	36	Seed certification protocol of forest tree species	1998	75.00
24	37	Tissue culture protocols for important medicinal plants of M.P.	1998	30.00
25	38	Macro-propagation protocol of some tree and medicinal plants species.	1998	40.00
26	39	Yield and stand tables of teak in Madhya Pradesh	1998	200.00
27	40	An Annotated Bibliography of Bamboo	1999	50.00
28	41	Status survey of Non Timber Forest Produce in primary Tribal Markets : A case study in Amarkantak Plateau.	1999	100.00
29	42	Application of laboratory seed testing results in nursery practices.	2000	50.00
30	43	म.प्र. में भिलवा का सामाजिक आर्थिक विश्लेषणात्मक अध्ययन	2000	100.00
31	44	Silviculture research in M.P.	2000	150.00
32	45	Handbook of Bamboos with particular reference to M.P.	2002	80.00
33	46	औषधीय पौधों की खेती की प्रचार-प्रसार पत्रिका	2003	150.00
34	47	Medicinal herbs in trade: a study of sa fed musli, (<i>chlorophytum</i> species) in Madhya Pradesh	2003	20.00
35	48	Collection, processing and marketing of <i>Buchanania lanzan</i> in Madhya Pradesh	2005	20.00
36	49	मध्यप्रदेश के महत्वपूर्ण आयुर्वेदिक पादप	2005	70.00
37	50	आंवला वृक्षारोपण एवं आर्थिक महत्व	2008	50.00
38	51	उच्च गुणवत्ता के बीज एकत्रीकरण, भण्डारण, उपचारण, प्रमाणीकरण तथा बीजोत्पादन क्षेत्रों के चयन एवं प्रबंधन पर दिग्दर्शिका	2008	50.00
39	52	Floral Diversity of Kanha Tiger Reserve	2009	900.00
40	53	Nursery and Planting technique of Tree Species	2010	100.00
41	54	Forest Glossary for All (English-Hindi)	2010	50.00
42	55	वृक्षारोपण मार्गदर्शिका	2011	150.00
43	56	संग्रहित लाख में समय के साथ वनोपजों में होने वाली कमी का अध्ययन	2014	TM
44	57	Status of natural gum and gum oleo-resin of M.P.	2014	TM
45	58	बीज प्रक्षेत्र का चयन, बीज उत्पादन क्षेत्र की स्थापना, प्रबंधन, बीज संग्रहण, भण्डारण, उपचारण, परीक्षण एवं रोपणी प्रबंधन	2014	TM
46	59	वानिकी में मैक्रोक्लोनल प्रोपेगेशन तकनीक द्वारा वृक्ष एवं औषधीय प्रजातियों के क्लोनल पौधे तैयार करने की विधियाँ	2014	TM

47	60	सामुदायिक भागीदारी द्वारा अकाष्ठीय वनोपजों के मानचित्रण एवं आंकलन विधि मार्गदर्शिका	2015	TM
48	61	अकाष्ठीय वनोपज सतत् विदोहन एवं प्रबंधन नियमावली	2015	55.00
49	62	कैमरा ट्रैप मार्गदर्शिका	2016	TM
50	63	अकाष्ठीय वनोपज प्रजातियों का अंतःस्थलीय, बाह्य स्थलीय संरक्षण, नवप्रवर्तन – वनवर्धन एवं विकास	2016	1120.00
51	64	अकाष्ठीय वनोपज सतत् विदोहन एवं प्रबंधन नियमावली	2016	800.00
52	65	Volume table of Teak for various divisions of Madhya Pradesh	2016	TM
53	66	Volume table of <i>Shorea robusta</i> (Sal) for various divisions of Madhya Pradesh	2016	TM
54	67	रोपणी मार्गदर्शिका	2016	100.00
55	68	Growth table of important coppice origin species for Madhya Pradesh	2016	TM
56	69	वन एवं औषधीय प्रजातियों की रोपणी एवं रोपण तकनीक मार्गदर्शिका	2016	370
57	70	कट रूट स्टॉक विधि : लेन्टाना उन्मूलन की नई तकनीक	2017	TM
58	71	बाघ, सह-परभक्षी, चौपायों एवं उनके वासस्थल का अनुश्रवण हेतु मार्गदर्शिका	2017	TM
59	72	प्रशिक्षण मार्गदर्शिका – आधुनिक जीपीएस, रेंज फाईंडर एवं कम्पास हेतु	2017	TM
60	73	Primary processing and drying techniques of NTFPs	2017	-
61	74	Directory of Medicinal Plants Traders and ISM Industries in Madhya Pradesh	2017	-
62	75	Selection of superior races of Khamer (<i>Gmelina arborea</i>) through clonal propagation	2017	-
		क्लोनल प्रोपेगेशन द्वारा खमेर (मैलाईना आरबोरिया) की श्रेष्ठ नस्लो (रेसेस) का चयन	2017	-
63	76	Quantitative estimation of bioactive compound through Chemofingerprinting (HPLC) for the identification of quality germplasm- <i>Andrographis paniculata</i> , <i>Bacopa monnieri</i> and <i>Swertia angustifolia</i>	2017	-
64	77	औषधीय पौध प्रजातियों की जबलपुर वन वृत्त के वनक्षेत्रों में वर्तमान स्थिति, संख्यात्मक घनत्व एवं उपलब्ध मात्रा का आंकलन "सर्वेक्षण एवं आंकलन मार्गदर्शिका"	2017	TM
65	78	बाघ, सह-परभक्षी, चौपायों एवं उनके वासस्थल का अनुश्रवण - 2018 हेतु मार्गदर्शिका	2018	TM

•TM – Training Material

2. Extension Series

Ext. Series	Title	Year	Price
1.	Teak seed collection and uses	1981	10.00
2.	वृक्षारोपण में बीजों का महत्व	1981	15.00
3.	म.प्र. में साल रोपण की तकनीक	1991	15.00
4.	पड़त भूमि विकास हेतु उपयुक्त प्रजाति लेंडिया	1991	10.00
5.	ईसबगोल	1994	5.00
6.	सर्पगन्धा	1994	5.00
7.	रोसा घास	1995	5.00
8.	A mechanical device for pre sowing treatment of teak seeds	1995	5.00
9.	वृक्षारोपण कैसे करें	1996	25.00
10.	SFRI Publications	1999	40.00

11.	माइकोराइजा (वैम)	1999	TM
12.	रायजोबियम	1999	TM
13.	एजेटोबेक्टर	2000	TM
14.	पी.एस.बी. (फास्फोरस विलायक)	2000	TM
15.	ऑवला : वनों से किसानों तक	2000	40.00
16.	बॉस : वनों से किसानों तक	2000	40.00
17.	सागौन : वनों से किसानों तक	2000	60.00
18.	खमेर : वनों से किसानों तक	2000	60.00
19.	यूकेलिप्टस : वनों से किसानों तक	2000	50.00
20.	बच (एकोरस केलेमस)	2001	5.00
21.	सतावर (एस्पेरेगस रेसीमोसस)	2001	5.00
22.	सफेद मूसली (क्लोरोफाइडम बोरिविलियानम)	2001	5.00
23.	कलिहारी (ग्लोरिओसा सुपरबा)	2001	5.00
24.	सनाय (केसिया आगस्टीफोलिया)	2001	5.00
25.	सर्पगंधा (रावोल्फिया सर्पेन्टिना)	2001	5.00
26.	अष्वगंधा (विथानिया सोमनीफेरा)	2001	5.00
27.	मुष्कदाना (एबलेमासकस मार्केटस)	2001	5.00
28.	लेमनग्रास (सिंबोपोगन फ्लेक्सिपोसस)	2001	5.00
29.	मेन्था या पोदीना (मेन्था आर्वेसिस)	2001	5.00
30.	लघुवनोपजों का प्राथमिक प्रसंस्करण (भाग 1)	2003	20.00
31.	लघुवनोपजों का प्राथमिक प्रसंस्करण (भाग 2)	2007	20.00
32.	Directory of Medicinal Plants Trades and ISM Industries of Central India	2009	100.00
33.	Monograph on <i>Alectra chitrakutensis</i>	2011	60.00
34.	Monograph on <i>Ceropegia bulbosa</i> and <i>Ceropegia macrantha</i>	2011	60.00
35.	Monograph on <i>Crateva magna</i> and <i>Ficus cupulata</i>	2011	60.00
36.	Monograph on <i>Dioscorea tomentosa</i> , <i>D. wallichia</i> and <i>D. alata</i>	2011	60.00
37.	Monograph on <i>Flemingia stricta</i> and <i>F. paniculata</i>	2011	60.00
38.	Monograph on Guggal (<i>Commiphora wightii</i>)	2011	60.00
39.	Monograph on Maida tree (<i>Litsea glutinosa</i>)	2011	60.00
40.	Monograph on Padri tree (<i>Radermachera xylocapa</i>)	2011	60.00
41.	Monograph on Shyonaka (<i>Oroxylum indicum</i>)	2011	60.00
42.	Some ethnic plants in cure of various human diseases	2011	250.00
43.	कमरकस (पलाश) गोंद का सतत् विदोहन, प्राथमिक प्रसंस्करण, श्रेणीकरण एवं भण्डारण तकनीकों का प्रदर्शन	2012	TM
44.	साल बोरर से साल वनों की सुरक्षा	2014	TM
45.	Education material on conservation, multiplication and utilization of rare, endemic <i>Angiosperms</i> and <i>Pteridophytes</i> in Forest Botanic Garden of State Forest Research Institute, Jabalpur (M.P.)	2014	TM
46.	Education material on Herbarium preparation and its management	2015	TM
47.	मध्यप्रदेश के वनों में पायी जाने वाली महत्वपूर्ण दुर्लभ प्रजातियों की उपयुक्त रोपणी तकनीकी का विकास	2015	TM

48	खमेर शीर्ष सूखन रोग एवं प्रबंधन तकनीकी मार्गदर्शिका	2015	TM
49	खनन क्षेत्रों में वनीकरण एवं पारिस्थितिकीय पुर्नस्थापना हेतु तकनीकी मार्गदर्शिका	2015	TM
50	महत्वपूर्ण संकटग्रस्त प्रजातियों की रोपणी तकनीक	2016	TM
51	नर्मदा तट पर वृक्षारोपण हेतु उपयुक्त प्रजातियाँ एवं रोपण विधियाँ	2017	-
52	साल वृक्षों की मृत्युदर को प्रभावित करने वाले कारकों का अध्ययन एवं उनके रोकथाम के उपाय मार्गदर्शिका	2017	TM
53	आर्थिक महत्व की प्रजातियों बीजा, धावड़ा एवं अचार में होने वाले रोगों का समेकित प्रबंधन एवं तकनीक मार्गदर्शिका	2018	TM
54	महुआ प्रशिक्षण एवं प्रदर्शन मार्गदर्शिका	2018	TM
55	सलई वृक्ष में वैज्ञानिक विधि से टैपिंग तकनीक, सतत् विनाश विहीन विदोहन, प्राथमिक प्रसंस्करण एवं भंडारण विधि – मार्गदर्शिका	2018	TM

TM - Training Material

Note: Payment for the above bulletins and extension series may be made by Demand Draft in favour of the Director, State Forest Research Institute, Jabalpur.

5. LIBRARY AND INFORMATION CENTRE

Mandate

SFRI library and information center is a prominent library of the state of Madhya Pradesh in the field of forestry. It houses books, reports, Indian Forest Records, Working Plans, Working Schemes, Forest resource surveys and Sanctuary Plans. Apart from the research staff of the Institute, forest officers, scientists and technical staff make use of the library facilities. Students, research scholars from various institutes and universities also visit the library regularly.

The library and information centre maintains literature on forestry and allied subjects. It has books on environment, silviculture, forest protection, mensuration, management, marketing, utilization, social forestry, biodiversity, ecology, botany, tissue culture, tree improvement, law, medicinal plants, wildlife, seed science and computer science, etc.

Activities

During the year 2017-2018, 7 working plans and 4 new books were received with the total as under:

1.	Books (including 2659 gratis books)	7576
2.	Reports (Govt. and NGO's)	396
3.	Indian Forest Records	641
4.	Working Plans	1445
5.	Sanctuary Plans	24
6.	Working Schemes	85
7.	Forest Resource Surveys	27
Total		10194

Following activities were undertaken during the year.

S. No.	Works	Status
1.	Circulation of books, working plans, reports and other reading materials	Routine work
2.	Correspondence with users for return of books	Routine work
3.	Provide CAS to users	Routine work
4.	Classification of books and arrangement of classified books	Routine work
5.	Preparation of book card slips and pasting of book pockets on books	Routine work
6.	Accession of books and Working plans	As received during the period

6. COMPUTER AND INFORMATION TECHNOLOGY

Mandate

1. Application of computers in forestry.
2. Design, development and implementation of computer based information system.

Objectives

1. To design, develop and implementation of computer based information system.
2. To design and develop the website of the institute.
3. To provide logistics and maintainance of all the computers of the institute.
4. To provide Internet Facilities in the Institute without interruption at a high speed.
5. To maintain CCTV Cameras in the Institute and Main Gate for security purpose.
6. To provide EPABX facilities in the Institute.
7. To provide and maintain Biometrics for attendance of all employees of the Institute.

Information Technology Centre

Information Technology centre has a number of computer systems (Desktop – 64, Laptop – 12) connected to each other via local area network (LAN) and with Domain server. The computer system is shared by a router to access World Wide Web information and Wi-Fi, which is also connected by local area network.

Activities carried out during the year

1. Presentation of PowerPoint for BOG, RAC, workshops, meetings, seminars and trainings.
2. Website of the institute has been upgraded.
3. Providing internet surfing and e-mail facilities to users through LAN.
4. Maintenance of computer equipments viz., computer systems, printers, scanners, LAN, UPS etc.
5. Research work data in a domain server stored during the year.

7. PUBLICATION OF BOOKS AND PRESENTATION OF RESEARCH PAPERS/ARTICLES BY SCIENTISTS/ RESEARCH PERSONEL OF THE INSTITUTE

During the year (April 2017 to March 2018)

S.N.	Name of Journal	Title of paper	Author(s)	Vol. No.
Papers published in Journals (National and International)				
1.	Journal of Tropical Forestry	Development of Fungal Growth of <i>Aspergillus Niger</i> , <i>Aspergillus flavus</i> and <i>Penicillium Chrysogenum</i> of Penoxsulam and Pyrazosulfuron-Ethyl Herbicides in agricultural soil.	Smita Rajput, Shobha Sondhia, Uzma Waseem Khan & S.K. Masih	Vol 32 (IV): 15-28, 2016.
		An assessment of different growth parameters of <i>Andrographis Paniculata</i> wall ex Nees.	Anil Kushram, S.K. Masih & R. P. Mishra	33 (II) : 11-27, 2017
		Volume tables of <i>Shorea robusta</i> (Sal) for South Shahdol forest Division	Richa Seth	Under Publication
		Lac host plant diversity in Balaghat and Seoni districts of Madhya Pradesh	Pratibha Bhatnagar, Ramdeen Bhalavi, Balram Lodhi	2017/Vol.33 No (1): 1-17
		Biological productivity variation of lac insect in Rangeeni and Kusumi crops in different districts of Madhya Pradesh	Pratibha Bhatnagar Balram Lodhi, Ramdeen Bhalavi	2018/Vol.34 No (1)
		"Forest Growth, Composition, herbaceous biomass & litter production study in Madhav National Park, Shivpuri (M.P.)".	A.K. Sharma, S. Dixit & D.Verma	2018/ 34 (II)
2.	International Journal of Applied and Universal Research	Morphological Growth Parameters of <i>Andrographis Paniculata</i> Wall EX. Nees	Anil Kushram, S.K. Masih & R. P. Mishra	Vol. (IV) I, 15-26, 2017
3.	International Journal of Agricultural Research	Biodiversity conservation Through Religious Believes in Sacred Groves of Jabalpur Forest Division (Madhya Pradesh).	Ruby Rai Duggal, S.K. Masih & R.P. Mishra	7(3) : 189-196, 2017
4.	Life Science	Medicinal Valuable Plants from Sacred Groves of Jabalpur Forest Division (Madhya Pradesh)	Ruby Rai Duggal, S.K. Masih & R.P. Mishra	14 (1) : 31-58, 2017
5.	Indian Journal of Tropical Biodiversity	Plant Diversity in Sacred Groves of Jabalpur Forest Division (Madhya Pradesh)	Ruby Rai Duggal, S.K. Masih & R.P. Mishra	25 (1) : 20-30, 2017

6.	European Journal of Biomedical and Pharmaceutical Sciences.	Andrographolide Bioactive Compound of Andrographis Paniculata from Different Region of Narsinghpur (M.P.)	Anil Kushram, S.K. Masih & R.P. Mishra	4 (12) : 669-672.
7.	International Journal of Current Research and Review	Variation of Andrographolide Content in Andrographis paniculata from Different Sites of Balaghat Region of (M.P.)	Anil Kushram, S.K. Masih & Sajad Ahmad Mir	2017
8.	International Journal of Bioscience and Biotechnology 2017	Recent development in seed technology of <i>Careya arborea</i> - high value tree medicinal species	Archana Sharma and Dharmendra verma	Published in IJBSBT
9.	Van-Dhan Vyapar	Lakh utpadan ek saphal rojgar	Pratibha Bhatnagar, Balram Lodhi, Ramdeen Bhalavi	March 2017
10.	Journal of Ecosystem & Ecography	"Wildlife Management Practices in Central India: An overview"	Rajput A. & Varma D.	April 2017 Volume 7/Issue 1/ISSN:2157-7625, Pp. 24.
11.	Journal of Ecosystem & Ecography	"Conservation of superior phenotypes of teak (<i>Tectona grandis</i>) in Central India"	Rajput A.	2017 Volume 7/Issue 1/ISSN:2157-7625, Pp. 39.
12.	Journal of Tropical Forestry	"Assessment of wildlife at Dumna Airport, Jabalpur" (Paper accepted)	Krishnamurthy G., Rajput A., Ali Z., & Sarir M.	

Papers published from SFRI

1.	वानिकी संदेश	महत्वपूर्ण बहुपयोगी प्रजातियों के विनाशविहीन विदोहन को नियंत्रित करने के सुझाव	एस. के. मसीह, के.बी. सिंह, एकता डेहरिया एवं राखी शर्मा	8 (4) : 13:38, मार्च 2018
2.	वानिकी संदेश	औषधीय पौधों का परम्परागत रोग निदान में उपयोग	डॉ. जी. एस. मिश्रा	Vol 7; No.1 & 2; 2016
3.	वानिकी संदेश	छत्तीसगढ़ से लगा उत्तरी पहाड़ी कृषि जलवायु क्षेत्र में निजी भूमि पर वृक्षारोपण का अध्ययन	डॉ. जी. एस. मिश्रा	Vol 7; No.3 & 4; 2016
4.	Vaniki Sandesh	वन क्षेत्रों में सागौन की पत्तियों में लगने वाले कीट skeletonizer (<i>Eutectona mechaeralis</i>) के प्रकोप एवं उनके नियंत्रण की सामान्य जानकारी।	उदय होमकर , ओ. पी. तिवारी एवं धर्मेन्द्र वर्मा	Vol.(8) 1-4.
5.	Vaniki Sandesh	Development of cultivation techniques of Van Jeera (<i>Centrantherum anthelminiticum</i> (L) Kantze)	Uday Homkar, O.P. Tiwari and Dharmendra verma	January – March 2018.
6.	वानिकी संदेश	अमरकंटक पठार क्षेत्र में वन औषधियों की खेती, रोपणी एवं विक्रय से अतिरिक्त आय उपार्जन की संभावना।	उदय होमकर , आलोक कुमार शर्मा एवं धर्मेन्द्र वर्मा	January – March 2018.

7.	Vaniki Sandesh	Arjun (<i>Terminalia Arjuna</i>): Nursery and plantation techniques.	Dr. Pratiksha Chaturvedi	Vol 7 No. 3&4 July-Dec. 2016.
8.	Vaniki Sandesh	Volume tables of <i>Shorea robusta</i> (Sal) for North Balaghat forest Division	Richa Seth	Volume- 8, No. 1-4 January-December, 2017
9.	Vaniki Sandesh	Volume tables of <i>Shorea robusta</i> (Sal) for North Shahdol forest Division.	Richa Seth	Under Publication

Papers presented in seminars / symposiums / workshops during the year (April 2017 to March 2018)

S. No.	Name of seminars/ symposiums/ workshops	Title of paper	Author(s)
1.	लघुवनोपज संदेश स्मारिका : अंतर्राष्ट्रीय वन मेला, भोपाल	औषधीय एवं लघुवनोपज प्रजातियों की सतत विनाश विहीन विदोहन पद्धतियाँ।	एस. के. मसीह, के. बी. सिंह, एकता डेहरिया एवं राखी शर्मा
2.	Smarika of Van Mela, Bhopal, 2017	महत्वपूर्ण औषधीय प्रजातियों मालकांगनी एवं बायविडिंग की रोपणी तकनीक।	उदय होमकर, ओ. पी. तिवारी एवं धर्मेन्द्र वर्मा
3.	लघु वनोपज संदेश: स्मारिका अंतर्राष्ट्रीय वन मेला, भोपाल	मध्यप्रदेश में गोंद उत्पादन एवं संग्रहण मात्रा का आँकलन	जी.एस. मिश्रा एवं सुनील कुमार प्यासी
4.	National workshop on "Entrepreneurship Development through cultivation, processing and value addition of MAPs and NTFP"	Regional-Cum-Facilitation Centre : Central Region	S.K. Masih
5.	XIX Commonwealth Forestry Conference (3-7 April 2017, Dehradun)	Poster presented on "Estimation of tree biomass of different miscellaneous species of Madhya Pradesh"	Richa Seth
6.	4 th International Conference on Agriculture and Forestry (24-25 August, Colombo, Sri Lanka).	Abstract for oral presentation on "Estimation of tree biomass of teak (<i>Tectona grandis</i>) at different ages in Mandla Forest Divisions of Madhya Pradesh"	Richa Seth
7.	National Seminar on Climate Change and Role of Communities for Adaptation and Mitigation (18-19 September 2017, State Forest Research Institute, Jabalpur).	Poster presented on "Estimation of stem biomass of Dhawada (<i>Anogeissus latifolia</i>) in different Forest Divisions of Madhya Pradesh for climate-smart management of forests."	Richa Seth
8.	State Forest Research Institute, Jabalpur).	Poster presented on "Estimation of stem biomass of Lendia (<i>Lagerstroemia Parvaiflora</i>) in various Forest Division of Madhya Pradesh for management of Forest in Changing Climatic Scenario."	Richa Seth
9.		Biomass and carbon stock assessment in the preservation plot in Narsinghpur Forest Division of Madhya Pradesh in the context of climate change.	O.P. Chaubey, Sachin Dixit, S.P. Saket and Dharmendra Verma

10.	Bio-technology as a tool in mitigating effects of climate change.	Dr. S.K. Tiwari, Dr. Dharmendra Verma, Dr. Sachin Dixit, Dr. A.K. Sharma, M.P. Goswami and Pankaj Saini
11.	Biomass accumulation and carbon sequestration assessment in Kanha Tiger Reserve, Mandla.	Dr. Sachin Dixit, Dr. A.K. Sharma, Dr. Dharmendra Verma and Dr. S.K. Tiwari
12.	Estimation of soil erosion from the over burden dumps with the help of GIS in context of climate change.	Rakesh Kumar Jain, Dr. R.K. Pandey, Dr. Sachin Dixit and Dr. Dharmendra Verma
13.	Carbon sequestration studies in Madhav National Park, Shivpuri of Madhya Pradesh in the context of climate change.	Dr. A.K. Sharma, Dr. Sachin Dixit, Dr. Dharmendra Verma and Dr. S.K. Tiwari
14.	Effect of climate change on flower production in <i>Madhuca latifolia</i>	Archana Sharma and Dharmendra verma
15.	Use of Biofertilizers for enhancement of growth in Teak seedlings raised in soil with varying pH and organic matter under changed climatic conditions.	Archana Sharma and Dharmendra verma
16.	Rural communities' perception of and adaptation strategies to climate change: a case study of Tendukhera Range, Damoh, Madhya Pradesh	Pratibha Bhatnagar, Jay Prakash George, Roshan Jhariya
17.	Influence of climate on lac insect crawler emergence period in different agro-climatic zones of Madhya Pradesh	Pratibha Bhatnagar, Ramdeen Bhalavi and Balram Lodhi
18.	Rural household domestic energy consumption pattern in the context of climate change mitigation : a case study	Pratibha Bhatnagar, Sonam Jain, Rajesh Barman, Alok Raikwar and Prakash Singh
19.	Climate change and role of forest communities and JFMCS in Damoh district of Madhya Pradesh	Pratibha Bhatnagar, Jay Prakash George, Roshan Jhariya
20.	जलवायु परिवर्तन से संभावित जोखिम एवं असुरक्षा के अवशमन में कृषि वानिकी की भूमिका	जी.एस. मिश्रा एवं सुनील कुमार प्यासी
21.	मध्यप्रदेश में जलवायु परिवर्तन का आदिवासी अर्थव्यवस्था पर प्रभाव : गोंद संग्रहण के विशेष संदर्भ में	जी.एस. मिश्रा एवं सुनील कुमार प्यासी
22.	Impact of climate change on forests and dependent communities: adaptation opportunities and challenges.	R.K. Pandey & Jyoti Singh
23.	जलवायु परिवर्तन की चुनौतियों एवं जन समुदाय की भूमिका	R.K. Pandey & Jyoti Singh
24.	Estimation of soil erosion from the over burden dumps with the help of GIS in context to climate change	Rakesh Kumar Jain & Sachin Dixit
25.	"Impact of climate change and habitat loss on wildlife"	Anjana Rajput & Bhaskar Bhandari

26.		Climate change impact on grasslands of Bandhavgarh Tiger Reserve (M.P.)	S.K. Kourav, Jyoti Singh, S. Nema & V. Haldkar
27.		Biomass and carbon stock assessment in a preservation plot in Pench Tiger Reserve, Madhya Pradesh.	Sachin Dixit, O.P. Chaubey, S.K. Tiwari, Amit Pandey and Dharmendra Verma
28.	Climate change and role of community for adaptation and mitigation” held at SFRI, Jabalpur on 18-19 Sept. 2017.	Nursery and plantation techniques of Bai-bidang (<i>Embelia basal</i>) for resolving the problems in cultivation of medicinal plants in Mahakoshal region due to climate change.	Uday Homkar, O.P. Tiwari and Dharmendra Verma
29.		Role of extension of nursery techniques to local communities in conservation and multiplication of R.E.T. species.	Tanvi Telang, Uday Homkar, O.P. Tiwari and Dharmendra Verma
30.		Migration of the water birds in Jabalpur, Madhya Pradesh - A source for development of community based Eco-tourism.	P. Mandal, Uday Homkar, O.P. Tiwari and Dharmendra Verma
31.	Poster presented in XIX Commonwealth Forestry Conference at Forest Research Institute, Dehradun, 3rd to 7th April, 2017	Invasive species - <i>Parthenium hysterophorus</i> & its management”	Jyoti singh
32.	Paper published in Smarika of Van Mela	अकाष्ठीय वनोपज के सतत् विदोहन एवं सतत् प्रबंधन तकनीक	-
33.	21 st Commonwealth Forestry Conference held at FRI Dehradun dated 03.04.2017 to 04.07.2017	Attended and participated	Archana Sharma
34.	International Conference on Biodiversity and Conservation at Dubai, UAE on 27-28 April, 2017	"Conservation of superior phenotypes of teak (<i>Tectona grandis</i>) in Central India"	Anjana Rajput
35.		Wildlife Management Practices in Central India: An overview"	Anjana Rajput & Dharmendra Verma
36.	World Forestry Day at Forestry Training Institute, Jaipur on 21 March 2017 organized by Forestry Training Institute (FTI), Jaipur in collaboration with Rajputana Society of Natural History (RSNH).	"Distribution of Indian Pangolin and associated habitat and flora of Pench Tiger Reserve"	Bhaskar Bhandari & Anjana Rajput
37.	South Asian Conference on small mammals at Kathmandu 27-29 August 2017.	"Distribution of Indian pangolin (<i>Manis crassicaudata</i>) and associated habitat and flora in the dry deciduous forest of Pench Tiger Reserve, Madhya Pradesh"	Bhaskar Bhandari & Anjana Rajput

8. BUDGET / FINANCE

Funding Sources

- 1 Grant-in-aid under non-plan budget of the Govt. of Madhya Pradesh, Forest Department
- 2 Project based external funding from govt./semi govt./non- govt. organizations and private donors.
- 3 Special assistance received from miscellaneous funding agencies.
- 4 Revenue from various sources of the institute.

Financial support and expenditure 2017-18

Budget head	Opening balance in (Rs.)	Budget received during the year in (Rs.)	Total Amount in (Rs.)	Expenditure in (Rs.)
10-2406 Non-Plan (Grant-in-aid)	0.00	59400000.00	59400000.00	64037578.00
Deposit Works (Sponsored projects)	27619636.00	76194223.00	103813859.00	45430321.00
CAMPA (Project) Satpura Bhawan Bhopal	10051016.50	41453000.00	51504016.50	37442643.14
Total Rs.	37670652.50	177047223.00	214717875.50	146910542.14

Details of sponsored projects

Various projects have been funded by govt./semi. Govt./non. And private agencies from time to time. Such on-going projects during the year 2017-18 are given below:

S. No.	Project Name & I.D.No.	Sponsoring agency	Balance available in the beginning of the year	Amount received in the year	Total Amount	Total Expenditure (1.4.17 to 31.3.18) in Rs.
1	<i>Ex-situ</i> Conservation of medicinally important wild life Tuberos/Rhizomatic plant and studies on their phenology and growth performance. BD/P/E/13-14/05	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	1440066	62000	1502066	611279
2	वनों एवं वन रोपणियों में लगने वाले कीट व्याधियों एवं उनके निवास पर किए गए कार्यो का सरल भाषा में संकलन म.प्र. के संदर्भ में। BD/P/E/16-17/06	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	654053	0	654053	143470
3	Development of Raised Mother Bed Technology and Mass multiplication of clonal plants of eucalyptus in SFRI, Jabalpur BD/P/I/16-17/03	SFRI Jabalpur Madhya Pradesh	974909	0	974909	254404

4	Development of high-tech nursery and preparation of quality planting material of RET species for their restoration in natural forest and rural/urban areas through plantations., BD/P/E/16-17/19	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	2000000	3740000	5740000	1541196
5	Survey, Population density and quantitative assessment of medicinal plants for the sustainable Development of Livelihood generation in Jabalpur forest Circle M.P. BD/P/E/17-18/04	Ministry of Health & Family Welfare (National Medicinal Plants Board)	0	2063000	2063000	1475240
6	Expression of Interest (EOI) for Establishment of "Regional-Cum-Facilitation Center (RCFC) for Central Region at SFRI. BD/P/E/17-18/11	National Medicinal Plant Board (NMPB) New Delhi	0	8976000	8976000	123917
7	Protection maintenance and growth study of dominant tree species for estimation of biomass and carbon sequestration in preservation plots laid in different forest	APCCF (CAMPA) M.P., Bhopal	834328	0	834328	776110
8	Sustainable Livelihood based management plan for Kunopalpur Wild Life Sanctuary. of M.P. BOT/P/E/13-14-15	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	1542298	0	1542298	316258
9	"Studies on photosynthetic efficiency, biomass production and Carbon sequestration of bamboo in plantation forests" BOT/P/E/14-15/07	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	1282534	966000	2248534	388278
10	Ecological Studies on Grasslands of Bandhavgarh Tiger Reserve with Special Reference To Wildlife Management. ECO/P/E/12-13/24	PCCF (Wild Life) M.P., Bhopal	1438048	1771000	3209048	680449

11	Development of technology for conservation and Sustainable management of Wild medicinal plants and NTFPs through community participation in Shahdol Forest Circle of (M.P.) ECO/P/E/14-15/01	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	1833306	0	1833306	432741
12	म.प्र. खनिज संसाधन विभाग द्वारा विभिन्न जिलों में रेत खनन क्लस्टर्स के अंतर्गत प्रस्तावित रेत खदानों का पर्यावरणीय मूल्यांकन एवं पर्यावरणीय प्रभाव प्रबंधन। ECO/P/E/15-16/09	The Madhya Pradesh State Mining Corporation Limited, Bhopal	1905271	0	1905271	365978
13	"National Seminar on Climate change and Roles & Responsibilities of Communities for Adaptaion Mitigation" ECO/P/E/17-18/05	Madhya pradesh Clean Development Mechanism Agency Bhopal	0	500000	500000	452617
14	"Study of Sal Regeneration status in borer affected areas" ECO/P/E/17-18/07	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	0	1080000	1080000	221451
15	"Maintenance and analysis of indoor and outdoor Samples in Environmental Impact Assessment (EIA) Laboratory, SFRI Jabalpur" ECO/RA/31	SFRI Jabalpur Madhya Pradesh	0	394000	394000	35101
16	अनुसंधान एवं विस्तार वृत्तों में माध्यम से संचालित लघु अनुसंधान कार्य। EXT/P/E/17-18/14	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	0	0	0	0
17	Development of integrated biotechnological package by genetic diversity assessment using molecular characterization, chemoprofiling and standardization of micro-propagation and cryopreservation protocol of four RET species. GEN/P/E/14-15/02	Govt. of India. Ministry of Health & Family was National Department of Ayush National Medicinal Plant	133199	546200	679399	389339

18	Quantitative determination of bioactive compounds of highly threatened medicinal plants species through chemoprofiling and standardization of propagation techniques using biotechnological interventions for their conservation. GEN/P/E/15-16/03	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	-194563	1620000	1425437	967454
19	Forensic DNA Profiling and timber tracing for origin of wood with special reference to <i>Tectona grandis</i> (Teak) & <i>Pterocarpus marsupium</i> (Bija) GEN/P/E/17-18/16	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	0	3849000	3849000	0
20	Monitoring and evaluation of tissue culture grown plants of <i>Dendrocalamus asper</i> in different forest divisions of Madhya Pradesh. GEN/P/E/17-18/18	Director MP Bamboo Mission, Bhopal	0	160000	160000	0
21	बांस की दो प्रजातियों डेन्ड्रोकेलेमस एसपर (संख्या 4000) एवं बेम्बूसा बल्कुआ (संख्या 1000) के 50000 पौधे तैयार करने के लिए आंतरिक परियोजना। GEN/P/IE/17-18/19	State Forest Research Institute Polipather, Jabalpur (M.P.)	0	400000	400000	80240
22	रोपणी मार्गदर्शिका का प्रकाशन MEN/P/E/12-13/25	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	64144	0	64144	0
23	Study based on growth of sample plots of Teak, Sal and other species laid out in different forest areas of Madhya Pradesh. MEN/P/I/17-18/01	State Forest Research Institute Polipather, Jabalpur (M.P.)	0	240000	240000	83487
24	Economic analysis of the rainfed teak plantations raised by MPRVVN under different models of planting for determination of optimum age of final felling to get the most profitable returns on the costs incurred in raising and maintaining them. MEN/P/E/17-18/11	Madhya Pradesh Rajya Van Vikash Nigam, Bhopal	0	300000	300000	4620

25	Standardization of seed and Nursery techniques for production of Quality Planting Stock of Important indigeneous species. SD/P/E/15-16/02	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	169319	1904000	2073319	725005
26	Production of Quality Planting Stock of Important RET and Wild Medicinal Tree Species Through application of advance technology. SD/P/I/17-18/06	State Forest Research Institute Polipather, Jabalpur (M.P.)	0	1542000	1542000	355619
27	महुआ फूल एवं सलई गोंद संबंधी प्रशिक्षण के संबंध में SD/AF/P/E/17-18/15	MP MFP Federation, Bhopal	0	580000	580000	213082
28	महुआ फूल एवं सलई गोंद संबंधी प्रशिक्षण के संबंध में SD/AF/P/E/17-18/15	MP MFP Federation, Bhopal	0	420000	420000	178937
29	Network project on conservation of Lac insect genetic resources SEM/P/E/14-15-05	Institute of Natural Resin and gums Namkum Ranchi	53940	1200000	1253940	994944
30	The Scheduled Tribes and other traditional Forest Dwellers (Recognition of forest right Act), 2006 implementation and its impact in Madhya Pradesh SEM/P/E/15-16/11	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	661730	947000	1608730	921202
31	Climate change and its impact on forest and livelihood of people in Damoh District SEM/P/E/16-17/07	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	589011	1171000	1760011	893312
32	Estimation of wood demand and supply in Madhya Pradesh- SEM/P/E/16-17/10	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	9667	1742000	1751667	1196368

33	Study & Comparison of Soil Cultural Practices in existing bamboo Plantation SIL/P/E/16-17/04	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	322026	492000	814026	103675
34	"Evaluation of performance of different plus trees of teak through progeny trials" TI/P/II/17-18/03	State Forest Research Institute Polipather, Jabalpur (M.P.)	0	180000	180000	5106
35	Maintainance and Enrichment of SFRI Bamboosetum TI/P/E/17-18/12	Director M.P. State Bamboo Mission Bhopal	0	450000	450000	23291
36	Monitoring and Evaluation of wild life and their habitate for Sustainable management and development in the protected Areas of Madhya Pradesh WL/P/E/15-16/01	PCCF (Wild Life) M.P., Bhopal	1863163	12571640	14434803	7373843
37	Evaluation of Impact of Rehabilitation of Pardhi Children in Panna District of Madhya Pradesh with reference to The Wildlife Conservation WL/P/E/15-16/04	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	524568	0	524568	416451
38	Study on agricultural crop damage by wild animals and its management in Hosangabad circle of Madhya Pradesh WL/P/E/15-16/12	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	796223	0	796223	399489
39	Impact of Tourism on Environmental, Ecological, and Socio-Economic Dynamics, in and around the Tiger Reserves of Madhya Pradesh WL/P/E/15-16/13	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	1548218	0	1548218	646224

40	Preparation of Detailed Project Report for wildlife habitat improvement in the adjoining area of Sardar Sarovar Project (M.P.) WL/P/E/16-17/08	Narmada Valley Development Authority, Bhopal (M.P.) (NVDA project)	85000	8203000	8288000	6073500
41	Capacity building of Forest Staff of Madhya Pradesh on Wildlife Population Monitoring Techniques WL/P/E/17-18/02	PCCF (Wild Life) M.P., Bhopal	0	2380000	2380000	1997970
42	Tiger Presence And Their Dispersal Movements in Ratapani-Kheoni Landscape of Vindhyan Range. WL/P/E/17-18/09	PCCF (Wild Life) M.P., Bhopal	0	1557000	1557000	425651
43	Standardization of the population estimation techniques of blue bull (<i>Boselaphus tragocamelus</i>). WL/P/E/17-18/10	PCCF (Wild Life) M.P., Bhopal	0	225000	225000	185053
44	Monitoring and Evaluation of Wildlife and their habitats for sustainable management and development in the Protected Areas/Non-Protected Areas of Madhya Pradesh. WL/P/E/17-18/17	PCCF (Wild Life) M.P., Bhopal	0	5142000	5142000	2000000
45	Maintenance of Monitoring and Evaluation Facilities and Data Base of Predators Prey In Madhya Pradesh" WL/RA/32	Wild Life Wing M.P. Bhopal	0	3628950	3628950	3625444
Total Project Balance			20530458	71002790	91533248	38097795
1	म.प्र. में साल बोरर से साल वनों की सुरक्षा हेतु प्रशिक्षण कार्यक्रम। BD/P/E/11-12/22	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	54677	0	54677	0
2	U.P. gradation and renovation of Museum at SFRI Jabalpur (M.P) BD/P/E/12-13/18	CAMPA, M.P., Bhopal	4506809	0	4506809	4506809

3	Development of cultivation techniques of vanjeera (Black Cumine) <i>Centrantherum anthelemniticum</i> (L) Kantze. BD/P/E/13-14/16	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	298400	0	298400	0
4	Documentation of ethnobotanical information on natural gum and resin yielding plant of (M.P.) BD/P/E/13-14/17	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	279702	0	279702	17926
5	Documentation of Some traditional knowledge of Local & Communities of Malwa Eco Region of M.P. BD/P/E/13-14/19	M.P. Council of Science of Technology, Bhopal	88840	0	88840	7408
6	मैंगनीज ओर के भूमिगत उत्खनन हेतु दक्षिण (सा.) वनमंडल बालाघाट वन परिक्षेत्र वारा सिवनी अंतर्गत वनकक्ष क्रमांक 460,461,466 में रकबा 10,000 हेक्टेयर अधिनियम 1980 के अंतर्गत वन भूमि व्यपवर्तन भूमि प्रस्ताव। ECO/P/E/14-15/06	J.K. Minerals Main Road Ward No. 15, Balaghat	472246	0	472246	-29725
7	Survey of existing Barahsingha & Blackbuck habitat evaluation for habitat viability asesment for Kanha Tiger Reserve and Satupra Tiger Reserve. ECO/P/E/11-12/26	क्षेत्र संचालक सतपुड़ा टाइगर रिजर्व होशंगाबाद	124985	0	124985	9000
8	Preparation of Wildlife Conservation Plan for Jagannathpur OCM of South Eastern Coalfields Ltd (SECL), Bhatgaon Area, Chhattisgarh ECO/P/E/15-16/10	General Manager (Operation) Bhatgaon Area South Eastern Coalfields Ltd. Bhatgon Distt. Surguja (C.G.)	38484	394835	433319	38412
9	राज्य वन अनुसंधान संस्थान जबलपुर के अनुसंधान परियोजनाओं के निष्कर्षों का प्रचार-प्रसार हेतु कार्यशाला का आयोजन। EXT/P/E/13-14/10	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	103840	0	103840	-180

10	अनुभूति परियोजना राज्य वन अनुसंधान संस्थान जबलपुर । EXT/P/E/16-17/10	म.प्र. ईकोपर्यटन विकास बोर्ड म.प्र. भोपाल	36735	0	36735	36735
11	Genetic diversity assessment of <i>Boswellia serrata</i> and standardization of microclonal propagation protocols through biotechnological interventions for the production of elite planting material. GEN/P/E/12-13/05	म.प्र.राज्य लघुवनोपज व्यापार एवं विकास सहकारी संघ मर्यादित म.प्र.भोपाल	29319	0	29319	0
12	Standardization and multiplication of clonal propagation protocol for commercially important forestry species <i>anogeissus pendula</i> . GEN/P/E/12-13/17	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	5741	0	5741	0
13	National Seminar on "Recent advances in research and development in medicinal and aromatic plants - A country scenario"	National Medicinal Plant Board (NMPB) New Delhi	-783805	0	-783805	9391
14	Clonal multiplication of <i>Dendrocalmus asper</i> (Thailand Bamboo) through micropropagation technique. GEN/P/I/16-17/11	SFRI, Jabalpur	0	200000	200000	117601
15	Revised- form factors table for important miscellaneous timber tree species of Madhya Pradesh. MEN/P/E/11-12/12	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	65803	0	65803	0
16	Computerization and digitalization of records of sample plots situated in Madhya Pradesh MEN/P/E/15-16/14	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	86188	0	86188	32047
17	Documentation and Development & Packages of seed and nursery techniques for some important indigenous Species. SD/P/E/12-13/14	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	266318	0	266318	44804

18	Standardization of primary processing and drying techniques for selected medicinal species and NWFP. SEM/P/E/11-12/25	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	60842	0	60842	25916
19	Compilation of 50 years of forestry research at State Forest Research Institute, Jabalpur SEM/P/E/12-13/03	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	98500	0	98500	98500
20	वन विभाग का 150 वर्ष कार्यक्रम मनाने हेतु SEM/P/E/11-12/20	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	75755	0	75755	59885
21	म.प्र. प्रमुख गोंदो के संग्रहण के आंकड़ों का संकलन एवं प्राथमिक संग्राहकों पर सामाजिक आर्थिक प्रभाव। SEM/P/E/13-14/18	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	114539	100000	214539	127101
22	"SIA, EIA, BD, HCVFs of Barghat and Lamta Project Division Plantation of MPRVFN Ltd" SEM/P/E/16-17/01	Madhya Pradesh Rajy Van Vikash Nigam	23110	269100	292210	123673
23	Market Information Service for NTFPs in Madhya Pradesh SEM/P/I/16-17/02	State Forest Research Institute JBP M.P.	64750	0	64750	64750
24	DNA-Based monitoring of tigers and their movement in the Kanha, Pench corridor of (M.P.) SIL/P/E/12-13/09	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	13812	0	13812	13812
25	म.प्र. वन विकास अभिकरण द्वारा विभिन्न वन विकास अभिकरणों में वित्तीय वर्ष 2012-13 के वर्षों ऋतु में हुए वृक्षारोपण कार्यों का अनुश्रवण मूल्यांकन। SIL/P/E/15-16/08	म.प्र. वन विकास अभिकरण	358509	0	358509	143658
26	म.प्र. वन विकास अभिकरण द्वारा विभिन्न वन विकास अभिकरणों में वित्तीय वर्ष 2013-14, 2014-15 एवं 2015-16 के वर्षों ऋतु में हुए वृक्षारोपण कार्यों का अनुश्रवण मूल्यांकन। SIL/P/E/16-17/18	म.प्र. वन विकास अभिकरण	261150	146410	407560	155448

27	Establishment of Bamboorium/Bambuse tum and Bamboo interpretation centre at SFRI, Jabalpur (बांस वाटिका एवं बैम्बू इंटरप्रीटेशन सेंटर की स्थापना) TI/P/E/10-11/01	PCCF (Development), Bhopal (M.P.)	99247	0	99247	94181
28	Integrated management of disease of economically important tree Species Dhawada, Bija, and Achar occurring in forest of (M.P.) TI/P/E/13-14/03	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	48489	0	48489	5092
29	Causes and remedial measures of Sal mortality <i>Shorea robusta</i> in forest areas of (M.P.) TI/P/E/13-14/04	APCCF Research, Extension and Lokvaniki (M.P.) Bhopal	162181	0	162181	15993
Total Closed Project Balance			7055166	1110345	8165511	5718237
Total (On Going + Closed) Project Balance			27585624	72113135	99698759	43816032
Interest Under Bank			34012	989946	1023958	1023958
Miscellaneous Project - 3987			0	3091142	3091142	590331
Gross Total			27619636	76194223	103813859	45430321

Details of sponsored CAMPA projects (Satpura Bhawan Bhopal)

S. No.	Project Name & I.D.No.	Sponsoring agency	Balance available in the beginning of the year	Amount received in the year	Total Amount	Total Exp. (1.4.17 to 31.3.18) in Rs.
1	Collection, processing, testing, certification and supply of quality seed of various forestry species Pr. ID. - SD/P/E/16-17/14	CAMPA (M.P.), Bhopal	5145053	23662000	28807053	24084920.14
2	Up-gradation of laboratory under EIA/EMP cell for water, air and noise pollution analysis in environmental impact assessment projects. ECO/P/E/16-17/13	CAMPA (M.P.), Bhopal	2663976.5	0	2663976.5	1227982
3	Mobile soil testing van SIL/P/E/16-17/15	CAMPA (M.P.), Bhopal	241987	7660000	7901987	6827510

4	Selection of suitable species on the basis of growth performance of established plantations and development of nursery techniques to increase green cover under Green India Mission (GIM) in western Madhya Pradesh. SIL/P/E/16-17/20	CAMPA (M.P.), Bhopal	0	2000000	2000000	611286
5	Demarcation (Protection), maintenance and record keeping of sample plots of Madhya Pradesh. MEN/P/E/16-17/08	CAMPA (M.P.), Bhopal	0	4340000	4340000	1676652
6	Role of Management Interventions in Wildlife Habitat Improvement on Abandoned Sites of Satpura Tiger Reserve, Madhya Pradesh. WL/P/E/16-17/16	CAMPA (M.P.), Bhopal	1000000	1500000	2500000	1781945
7	Knowledge upgradation and skill development of field foresters, forest dependent communities and resource persons through lab to land training modules. EXT/P/E/16-17/17	CAMPA (M.P.), Bhopal	1000000	500000	1500000	1232348
Total		0.00	10051016.5	39662000	49713016.5	37442643.14
8	Protection, maintenance and successional study in terms of growth, biomass and carbon sequestration in preservation plots laid in different forest types of Madhya Pradesh BOT/P/E/11-12/07	CAMPA (M.P.), Bhopal	0	1791000	1791000	0
Total		0.00	0	1791000	1791000	0
Gross Total		0.00	10051016.5	41453000	51504016.5	37442643.14

INCOME of the A/c SB/3990 Revolving Funds for the year 2017-18.

S.No.	HEAD	Income (In Lakh)
1	Gate Entry Fees	321498
2	Guest House Receipts	918005
3	House Rent & Water Charges	767705
4	Misc Receipts	29995
5	Plant Sale	1106823
6	Seed collection Project	8296980
7	Seed collection CAMPA Project	13009535
8	Seminar & Meeting	126000
9	Tender Form Sale	42100
10	Training Receipts	162500
11	Vehicle Auction	23500
12	Institutional Charge	1140122
	Interest Received	
13	Interest on FDR	580846
	Grand Total	26525609

EXPENDITURE of the A/c SB/3990 Revolving Funds for the year 2017-18.

S.No.	HEAD	Expenditure (In lakh)
1	Daily Wages	1069257
2	GST	169474
3	Repair & Maintenance	7555022
4	Traveling	793697
5	Advertisement	121068
6	Bank Charge	2016
7	Consultancy Charge	129330
8	Electricity	207500
9	Misc. Expenses	75664
10	Nursery Expenses	397755
11	Office Exp	289084
12	POL Expenses	15336
13	Seminar & Meeting Expenses	391062
14	Stationary Expenses	430416
15	Uniform Expenses	25800
16	Vehicle Maintainance	89577
17	Website Design Maintenance	213750
18	Employee Reward Expenses	50000
19	Audit and Legal Fee	49100
20	Seed Collection work Expenses	5063369
21	Internet Charges	117991
	Gross Total	17256268

**Income from the Reserve Funds for the year 2017-18
(Sanchit Nidhi) A/c 5007081661**

S.No.	Details	Income
1	RTI Receipt	3848
2	Misc. Receipts	28720
3	Plant Sale	17025
4	Gate Entry Fee	367325
5	POL Charge Recovery	30600
6	Institutional Charge	1140122
7	Book & Magazine Sales	6000
8	Seed Supply	40100
9	Tender Form Fee	32500
	Interest	
10	Interest on FDR	327435
11	Saving Interest	117225
	Total	2110900

**Expenditure incurred from the Reserve Funds for the year 2016-17 (Sanchit Nidhi)
A/c 5007081661.**

S.No.	Details	Income
1	Repair & Maintenance	417911
2	Bank Charge	53
3	Misc. Expenses	11294
	Total	429258.00

Financial Status as on 31st March, 2018

S.No.	Details	Cash in Bank	F.D.R.	Total
1	Revolving Fund (Sangosthi A/c)	7543719	40600000	48143719
2	Grant-In-aid (SB/3268)	5796962		5796962
3	Deposit Work (Project Account)	8083528	50300000	58383528
4	CAMPA	14061373	0	14061373
5	Sanchit Nidhi 50070181661	656667	40499000	41155667
	Total	36142249	131399000	167541249

9. ESTABLISHMENT

Postings, Transfers, Retirements (2017-2018)

Postings

S.No.	Name	Designation	Date of Joining
1	Shri Nitesh Soni	Forest Guard	29-09-2017

Retirements

S.No.	Name	Designation	Date of Relieving
1	Dr. R.K. Pandey	Scientist	31-03-2017
2	Shri Ramnaresh Kanojiya	Dafftari	31-07-2017
3	Smt. Munni Bai	Peon	31-08-2017
4	Shri P.S. Bhandari	Forester	30-11-2017
5	Shri Ratan Lal Balmik	Sweeper	30-11-2017

Temporary project staff engaged during the year (April 2017 to March 2018)

S. No.	Name	Designation	Project	Period	
				From	To
1	Shri Shailendra Nema,	JRF	Regional-Cum-Facilitation Centre in SFRI, Jabalpur mp.	March 2018	Feb. 2019
2	Shri Abhishek Kumar Gupta	DEO/Supporting Staff			
3	Smt. Snehlata Mishra	Computer Operator	Preparation of Detailed Project Report For wildlife habitat improvement in the adjoining area of Sardar Sarovar Project Madhya Pradesh"	March 2018	Feb. 2019
4	Shri Mukesh Gavane	Field Asst.	The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights Act)	Feb. 2017	Feb. 2018
5	Shri Rajesh Barman	Field Asst.			
6	Mr. Prakash Singh	JRF			
7	Ku. Shubhangi Khattri	Computer Operator			
8	Shri Balram Lodhi	SRF	Network project on conservation of Lac insect genetic resources.	March 2017	March 2018
9	Shri Ramdeen Bhalavi	SRF			
10	Shri Jay Prakash George	SRF	Climate Change and its Impact on Forests and The livelihood of People in Damoh District.	April 2018	-
11	Mr Roshan Jhariya	Field Asst.			
12	Shri Vineet kumar Mehra	JRF	Development of integrated biotechnological package by genetic diversity assesment using molecular characterization, chemoprofiling, standardization of micropropagation and cryopreservation protocol of four RET species.	April 2017	March 2018
13	Shri Manish puri Goswami	SRF		March 2018	Feb. 2019

14	Shri Shailendra Singh Yadav	Research Associate	Preparation of Detailed Project Report For wildlife habitat improvement in the adjoining area of Sardar Sarovar Project Madhya Pradesh”	May 2017	April 2018
15	Mr. Pancham Lal Sanodhiya	JRF			
16	Dr. Aniruddha Majumder	Research Associate		Sept. 2017	Dec. 2017
17	Ku. Richa Pandey	JRF		Sept. 2017	Aug. 2018
18	Shri Pankaj Saini	Project Fellow	Quantitative determination of bio-active compounds of highly threat medicinal plant species (<i>Butea superba</i> , <i>Corallocarpus epigeous</i> <i>Alectra chitrakutensis</i>) through chemoprofiling and standardization of propagation techniques using biotechnological interventions for their conservation.	April 2017	March 2018
19	Mr. Pradhuma Kumar Soni	Computer Operator		CCF Job Rate	-
20	Shri Suresh Prasad Charmkar	JRF	Sustainable livelihood based management plan for Kuno-Palpur wildlife sanctuary of Madhya Pradesh.	April 2017	April 2018
21	Smt. Anju Kathel	JRF	Standardization of Seed and Nursery Techniques for Production of Quality Planting Stock of Important Indigenous Species.	July 2016	Dec. 2018
22	Shri Ramkumar Kahar	JRF		June 2018	-
23	Mo. Ashad Hussain	Field Asst.	Study on Agricultural Crop Damage by Wild Animals and its Management in Hoshangabad Circle of Madhya Pradesh.	Feb. 2016	Dec. 2017
24	Shri Krishna Prakash Upadhyay	JRF		Dec. 2017	March 2018
25	Shri T.S. Sandeep Pillai	Computer Operator	Studies on photosynthetic efficiency biomass production and carbon sequestration of bamboo in plantation forests	May 2017	March 2018
26	Shri Imrat Sen	Project Asst.		May 2017	May 2018
27	Shri Shivkumar Kourav	JRF	Ecological studies on Grasslands of Bandhavgarh Tiger Reserve with special reference to wildlife Management .	July 2017	June 2018
28	Shri Virendra Kumar Bind	Field Asst.	Estimation of Wood demand and Supply in Madhya Pradesh.	June 2017	-
29	Shri Nitin Kumar Jaiswal	JRF	Estimation of Wood demand and Supply in Madhya Pradesh.	May 2017	April 2019
30	Ku. Durga Choudhary	-		June 2017	May 2018
31	Mr. Jitendra Gatey	Field Asst.		Sept. 2017	Aug. 2018
32	Miss. Ranjana Haldkar	Computer Operator	Study based on growth of sample plots of Teak, Sal and other species laid out in different forest areas of Madhya Pradesh.	June 2017	May 2018
33	Miss. Tanvi Telang	JRF	Ex-situ conservation of medicinally important wild tuberous/rhizomatic plants and studies on their phenology and growth performance.	July 2017	June 2018
34	Mr. Shaik, Nagul Meera	JRF	Development of high-tech nursery and preparation of quality planting material of RET species for their restoration in natural forest and rural/urban areas through plantation.	July 2017	June 2018
35	Shri Pratap Rao Vagh	Computer Ope. Cum P. Asso.	Impact of Tourism on Ecological, Economical and Social dynamics in and around the Tiger Reserves of Madhya Pradesh.	May 2017	April 2018

36	Mr Prayut Mandal	JRF	वनों एवं वन रोपणीयों में लगने वाली कीट व्याधियाँ एवं उनके निदान पर किये गये कार्यों का सरल भाषा में संकलन : मध्य प्रदेश के संदर्भ में।	Aug. 2016	July 2018
37	Mr. Suneel Kumar Payasi	Field Asst.	म.प्र. में प्रमुख गौदों के संग्रहण के आंकड़ों का संकलन एवं प्राथमिक संग्राहकों पर सामाजिक आर्थिक प्रभाव	Feb. 2018	March 2018
38	Miss. Ekta Dehariya	Project Asst.	Survey, population density and quantitative assessment of medicinal plants for the sustainable development of livelihood generation in jabalpur forest Circle (mp)	July 2018	June 2019
39	Miss.Rakhi Sharma	Operator cum Typist		July 2017	June 2019
40	Shri Amardeep Rajak	Computer Programmer	Selection of suitable species on the basis of growth performance of established plantations and development of nursery techniques to increase green cover under Green India Mission (GIM) in western Madhya Pradesh.	June 2017	May 2018
41	Mr. Jitendra Kumar Dubey	JRF		Sept. 2017	Aug. 2018
42	Mr. Brijpal Singh Rajawat	JRF		March 2017	Feb. 2018
43	Mr. Laxmi Kant Kourav	Field Asst.	Collection, processing, testing, certification and supply of quality seeds of various forestry species.	May 2017	April 2018
44	Mr. Jitendra Nagpure	Project Asst.		May 2017	April 2018
45	Ms. Neha	Project Asst.		July 2017	May 2018



**Air layering of *Flemingia* plant
for lac inoculation**



Installation of Camera Trap



Field demonstration of equipments for Tiger estimation



**Trainee Forest Range Officers in the
Medicinal Plants Gene Bank**



**Trainee Forest Range Officers visit
to the Museum of the Institute**

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