

Establishing FSI Cell in Each State for Strengthening Monitoring and Forest Resource Assessment

1. Background

Forest Survey of India (FSI), an organization under the Ministry of Environment, Forests, & Climate Change Government of India is engaged in the assessment of the country's forest resources on a regular interval. Established on June 1, 1981, the Forest Survey of India succeeded the "Pre-investment Survey of Forest Resources" (PISFR), a project initiated in 1965 by Government of India with the sponsorship of FAO and UNDP. The main activities of FSI are as follows:

- Assess the forest cover of the country through Remote Sensing technology, analyse the changes and prepare State of Forest Report biennially.
- Conduct inventory in forests and non-forest areas at national level and develop database on wood volume and also estimate tree cover.
- Function as a nodal agency for collection, compilation, storage and dissemination of spatial database on forest resources.
- Conduct training of forestry personnel in application of technologies related to resources survey, remote sensing, GIS, etc.
- Strengthen research & development infrastructure in FSI and to conduct research on applied forest survey techniques and geospatial technology application.
- Support State/UT Forest Departments (SFD) in forest resources survey, mapping and inventory.
- Undertake forestry related special studies/consultancies and custom made training courses for SFD's and other organizations on project basis.
- Assess forest carbon at the National and State levels.
- Node of the country for international reporting on forest resources and forest carbon.
- Forest Fire Monitoring.

Forest cover assessment using satellite data is being carried out by FSI since 1987 and information on forest cover at national, state and districts level is being published in biennial report of FSI along with changes in respect of previous assessment. As FSI keeps pace with rapidly changing technology, the methodology of forest cover, resolution of satellite data, scale of interpretation has improved a lot over last two decades keeping pace with change in technology.

In addition, the capacity building of personnel of State Forest Department in modern geomatics tools is a regular activity of FSI and more than 4000 officers have been trained till date. Besides mandated activities, FSI is playing an important role in preparation of Global Forest Resource Assessment done by FAO and reporting estimates of carbon to UNFCCC.

State Forests Department (SFDs) are the major stakeholders of information generated by FSI. Almost every information generated by FSI is useful to SFDs particularly activities like Forest Fire, Forest Cover, Forest Types, and Forest Inventory etc. are widely used by SFDs. Now with the implementation of Compensatory Afforestation Fund Act 2016 and Compensatory Afforestation Fund Rule 2018, the third party monitoring of plantations and activities implemented by SFDs utilizing the funds sanctioned from the Compensatory Afforestation Fund by MoEF&CC is proposed to be done by FSI. This will require very close coordination between FSI & SFDs and facilitation to SFDs on technical matters and methodology. The expert committee for formulation of Strategy to support additional carbon sink from forest and tree cover has also recommended creation of a FSI cell in each SFD for better coordination between FSI and SFDs. Accordingly, it is proposed that a FSI Cell is created in each State and selected UTs. In addition, one FSI cell will be created in the office of CAMPA at the MoEF&CC, New Delhi which will coordinate between FSI, Ministry and SFDs.

2. Proposed functions of FSI Cell in the SFDs

The activities envisaged under FSI Cell are as follows:

- (i) Cell will act as a node for data exchange between SFDs & FSI.
- (ii) All field activities will be coordinated with SFDs through FSI Cell.
- (iii) For monitoring of plantations under CAMPA, all necessary inputs from SFDs will be obtained through FSI Cell.
- (iv) FSI will also play an important role in imparting training on web based application like DSS, E-Green Watch, use of GPS, Forest Fire Monitoring at the state level and will also help SFDs in interpretation of FSI Data.
- (v) FSI Cell will also be a node for all web GIS services offered by FSI.
- (vi) The cell will facilitate ground truthing of remote sensing based mapping activities of FSI, with the help of FSI cells in the States much higher intensity of ground truthing is possible.
- (vii) Creation of FSI Cell will pave way for providing technical support to SFDs in preparation of Working Plans.
- (viii) The cell will act as mini Training Center for the SFDs on geospatial technology applications and forest inventory and forest fire monitoring etc.
- (ix) FSI cells in the State will facilitate implementation of State specific projects also.

3. Functioning of FSI Cell

For creation of FSI Cell in the States, suitable space will be provided by the concerned SFDs. The room will be furnished by FSI. The necessary expenditure will be borne by FSI. FSI will recruit necessary qualified manpower on contractual basis and deploy them in each FSI Cell. The SFDs will provide at least one full time staff for FSI Cell. The FSI cell will work under the direct control of FSI headquarters Dehradun, through the Zonal Offices.

In the larger States FSI cell will be manned by two Technical Associates (engaged on contractual basis) and at least one staff to be provided by the SFD. In small state only one Technical Associate of FSI will be deployed. Necessary computer(s) and peripherals

and GPS will also be procured for the FSI Cells by FSI. Creation of FSI cells will be initiated during 2019-20.

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4. Budget Outlay

One-time expenditure on Establishing FSI cells

| S No | Item | Amount (in Rs lakhs) | Remarks |
|------|---|----------------------|--|
| 1. | Cost of furnishing room including furniture etc | 51.40 | The space will be provide concerned SFDs |
| 2. | Computer and other equipments | 112.50 | One for each FSI personal |
| | Total | 163.90 | *details given in Annexure-I |

(Rs. One Crore Sixty Three Lakh Ninety Thousands)

Annual Recurring Expenditure

| S No | Item | Amount (in Rs lakhs) | Remarks |
|------|--|----------------------|---|
| 1. | Salary of Technical Associates | 185.56 | @ of 31,000/- + HRA per month per the DST guidelines. |
| 2. | Travel Cost | 51.60 | For ground truthing, field inven etc. |
| 3. | Miscellaneous including stationary, internet etc | 32.00 | |
| | Total | 269.16 | *details given in Annexure-II |

(Rs. Two Crore Sixty Nine Lakhs Sixteen Thousands)

Annexure-I
One time expenditure on Establishing FSI cell

| S.No | State/ Union Territories | No. of Techn Associates | Cost of Furnishing Including furniture etc (Rs) | Cost Workstation/ Computer/ Printers | Total one time Cost (Rs) |
|------|--------------------------|-------------------------|---|--------------------------------------|--------------------------|
| 1 | Andhra Pradesh | 2 | 200,000 | 450,000 | 650,000 |
| 2 | Arunachal Pradesh | 1 | 140,000 | 300,000 | 440,000 |
| 3 | Assam | 1 | 140,000 | 300,000 | 440,000 |
| 4 | Bihar | 2 | 200,000 | 450,000 | 650,000 |
| 5 | Chhattisgarh | 1 | 140,000 | 300,000 | 440,000 |
| 6 | Delhi | 1 | 140,000 | 300,000 | 440,000 |
| 7 | Goa | 1 | 140,000 | 300,000 | 440,000 |
| 8 | Gujarat | 2 | 200,000 | 450,000 | 650,000 |
| 9 | Haryana | 1 | 140,000 | 300,000 | 440,000 |
| 10 | Himachal Pradesh | 1 | 140,000 | 300,000 | 440,000 |
| 11 | J&K | 1 | 140,000 | 300,000 | 440,000 |
| 12 | Jharkhand | 1 | 140,000 | 300,000 | 440,000 |
| 13 | Karnataka | 2 | 200,000 | 450,000 | 650,000 |
| 14 | Kerala | 1 | 140,000 | 300,000 | 440,000 |
| 15 | Madhya Pradesh | 2 | 200,000 | 450,000 | 650,000 |
| 16 | Maharashtra | 2 | 200,000 | 450,000 | 650,000 |
| 17 | Manipur | 1 | 140,000 | 300,000 | 440,000 |
| 18 | Meghalaya | 1 | 140,000 | 300,000 | 440,000 |
| 19 | Mizoram | 1 | 140,000 | 300,000 | 440,000 |
| 20 | Nagaland | 1 | 140,000 | 300,000 | 440,000 |
| 21 | Odisha | 1 | 140,000 | 300,000 | 440,000 |
| 22 | Punjab | 1 | 140,000 | 300,000 | 440,000 |
| 23 | Rajasthan | 2 | 200,000 | 450,000 | 650,000 |
| 24 | Sikkim | 1 | 140,000 | 300,000 | 440,000 |
| 25 | Tamil Nadu | 2 | 200,000 | 450,000 | 650,000 |
| 26 | Telangana | 1 | 140,000 | 300,000 | 440,000 |
| 27 | Tripura | 1 | 140,000 | 300,000 | 440,000 |
| 28 | Uttar Pradesh | 2 | 200,000 | 450,000 | 650,000 |
| 29 | Uttarakhand | 1 | 140,000 | 300,000 | 440,000 |
| 30 | West Bengal | 2 | 200,000 | 450,000 | 650,000 |
| 31 | A & N Island | 1 | 140,000 | 300,000 | 440,000 |
| 32 | FSI cell at MoEF&CC | 2 | 200,000 | 450,000 | 650,000 |
| | Grand Total | 43 | 5,140,000 | 112,50,000 | 16,390,000 |

Annexure-II
Annual Recurring Expenditure

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| Sl.No | State/ Union Territories | No. of Technical Associates | Salary of T.A Per annum including HRA (Rs) | Travel Cost (@ of Rs 10,000/- month) | Misc. (including stationary, internet etc) annum Expenditure (Rs) | Total Recurring (Rs) |
|-------|-----------------------------|-----------------------------------|--|--|--|----------------------------|
| 1 | Andhra Pradesh | 2 | 8,63,040 | 2,40,000 | 100,000 | 12,03,040 |
| 2 | Arunachal Pradesh | 1 | 4,31,520 | 1,20,000 | 100,000 | 6,51,520 |
| 3 | Assam | 1 | 4,31,520 | 1,20,000 | 100,000 | 6,51,520 |
| 4 | Bihar | 2 | 8,63,040 | 2,40,000 | 100,000 | 12,03,040 |
| 5 | Chhattisgarh | 1 | 4,31,520 | 1,20,000 | 100,000 | 6,51,520 |
| 6 | Delhi | 1 | 4,31,520 | 1,20,000 | 100,000 | 6,51,520 |
| 7 | Goa | 1 | 4,31,520 | 1,20,000 | 100,000 | 6,51,520 |
| 8 | Gujarat | 2 | 8,63,040 | 2,40,000 | 100,000 | 12,03,040 |
| 9 | Haryana | 1 | 4,31,520 | 1,20,000 | 100,000 | 6,51,520 |
| 10 | Himachal Pradesh | 1 | 4,31,520 | 1,20,000 | 100,000 | 6,51,520 |
| 11 | J&K | 1 | 4,31,520 | 1,20,000 | 100,000 | 6,51,520 |
| 12 | Jharkhand | 1 | 4,31,520 | 1,20,000 | 100,000 | 6,51,520 |
| 13 | Karnataka | 2 | 8,63,040 | 2,40,000 | 100,000 | 12,03,040 |
| 14 | Kerala | 1 | 4,31,520 | 1,20,000 | 100,000 | 6,51,520 |
| 15 | Madhya Pradesh | 2 | 8,63,040 | 2,40,000 | 100,000 | 12,03,040 |
| 16 | Maharashtra | 2 | 8,63,040 | 2,40,000 | 100,000 | 12,03,040 |
| 17 | Manipur | 1 | 4,31,520 | 1,20,000 | 100,000 | 6,51,520 |
| 18 | Meghalaya | 1 | 4,31,520 | 1,20,000 | 100,000 | 6,51,520 |
| 19 | Mizoram | 1 | 4,31,520 | 1,20,000 | 100,000 | 6,51,520 |
| 20 | Nagaland | 1 | 4,31,520 | 1,20,000 | 100,000 | 6,51,520 |
| 21 | Odisha | 1 | 4,31,520 | 1,20,000 | 100,000 | 6,51,520 |
| 22 | Punjab | 1 | 4,31,520 | 1,20,000 | 100,000 | 6,51,520 |
| 23 | Rajasthan | 2 | 8,63,040 | 2,40,000 | 100,000 | 12,03,040 |
| 24 | Sikkim | 1 | 4,31,520 | 1,20,000 | 100,000 | 6,51,520 |
| 25 | Tamil Nadu | 2 | 8,63,040 | 2,40,000 | 100,000 | 12,03,040 |
| 26 | Telangana | 1 | 4,31,520 | 1,20,000 | 100,000 | 6,51,520 |
| 27 | Tripura | 1 | 4,31,520 | 1,20,000 | 100,000 | 6,51,520 |
| 28 | Uttar Pradesh | 2 | 8,63,040 | 2,40,000 | 100,000 | 12,03,040 |
| 29 | Uttarakhand | 1 | 4,31,520 | 1,20,000 | 100,000 | 6,51,520 |
| 30 | West Bengal | 2 | 8,63,040 | 2,40,000 | 100,000 | 12,03,040 |
| 31 | A & N Island | 1 | 4,31,520 | 1,20,000 | 100,000 | 6,51,520 |
| 32 | FSI cell at MoEF&CC | 2 | 8,63,040 | 2,40,000 | 100,000 | 12,03,040 |
| | Grand Total | 43 | 1,85,55,360 | 51,60,000 | 32,00,000 | 2,69,15,360 |