

MILESTONES IN FORESTRY



Directorate of Forests
Government of West Bengal

গাছ লাগানো পরিবেশ বাঁচানো

Forests of West Bengal

The state of West Bengal extends from the Himalayas in the north to the Bay of Bengal in the south. It lies between 21°20' N and 27°32' N latitude and 85°50' E and 89°52' E longitude covering a geographic area of 88,752 sq.km. Five States (Sikkim, Assam, Bihar, Jharkhand and Orissa) and three countries (Bhutan, Nepal and Bangladesh) surround West Bengal – Sikkim to the North, Bhutan to the North-East, Assam and Bangladesh to the East, Nepal, Bihar and Jharkhand to the West and Jharkhand and Orissa to the South-West. The extreme southern part ends in the Bay of Bengal.

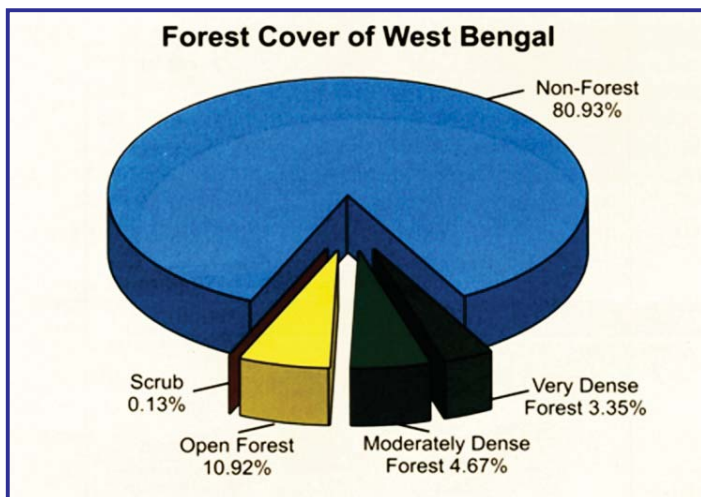
Total recorded forest land in the state is 11,879 sq.km, of which 7,054 sq.km. is Reserved Forest, 3,772 sq.km. is Protected Forest and 1,053 sq.km. is Unclassed State Forest, thus constituting 13.38% of the geographical area of the state.



District wise Area under Forests by Legal Status in West Bengal (Area in Sq. Km.)

| Sl. No. | District | Reserved Forests | Protected Forests | Unclassed State Forests & Others | Total Area |
|---------|-------------------|-----------------------|-----------------------|----------------------------------|-----------------|
| 1 | Darjeeling | 1,115 | - | 89 | 1,204 |
| 2 | Jalpaiguri | 1,483 | 217 | 90 | 1,790 |
| 3 | Cooch Behar | - | 42 | 15 | 57 |
| 4 | Bankura | 80 | 1,311 | 91 | 1,482 |
| 5 | Purba Medinipur | 8 | 1,166 | 535 | 1,709 |
| 6 | Paschim Medinipur | | | | |
| 7 | Burdwan | 3 | 192 | 82 | 277 |
| 8 | Purulia | 112 | 729 | 35 | 876 |
| 9 | Birbhum | 8 | 54 | 97 | 159 |
| 10 | Hooghly | 3 | - | - | 3 |
| 11 | Nadia | 5 | 3 | 5 | 13 |
| 12 | Murshidabad | 1 | 7 | - | 8 |
| 13 | Malda | 8 | 5 | 7 | 20 |
| 14 | Uttar Dinajpur | 8 | 4 | 6 | 18 |
| 15 | Dakshin Dinajpur | | | | |
| 16 | 24-Parganas (N) | 43 | - | - | 43 |
| 17 | 24-Parganas (S) | 4,177 | 42 | 1 | 4,220 |
| 18 | Howrah | - | - | - | |
| 19 | Kolkata | - | - | - | |
| | Total | 7,054 (59.38%) | 3,772 (31.75%) | 1,053 (8.87%) | 11,879 |
| | All India | 4,23,311 | 2,17,245 | 1,27,881 | 7,68,437 |

Excerpts from India State of Forest Report 2013 (published by Forest Survey of India, Ministry of Environment & Forests, Government of India, 2014)



| Class | Description |
|-------------------------|--|
| Very dense forest | All lands with tree canopy density of 70% & above |
| Moderately dense forest | All lands with tree canopy density of 40% & more but less than 70% |
| Open forest | All lands with tree canopy density of 10% & more but less than 40% |
| Scrub | Degraded forest lands with canopy density less than 10% |
| Non-forest | Lands not included in any of the above classes |

| | |
|--|--------|
| Geographical area (sq. Km.) | 88,752 |
| Population (2011 census) (million) | 91.27 |
| Total forest cover (sq. Km.) | 16,805 |
| Tree cover (sq. Km.) | 2,144 |
| Total forest & tree cover (sq. Km.) | 18,949 |
| Per capita forest & tree cover (ha.) | 0.021 |
| Forest & tree cover of State's geographical area (%) | 21.35 |
| Of India's forest & tree cover (%) | 2.40 |
| Growing stock in Recorded Forest Area (million cu.m) | 83.31 |
| Growing stock in Trees Outside Forest (million cu.m) | 41.74 |
| Growing stock in Agroforestry (million cu.m) | 33.51 |
| Growing stock in Urban Area (million cu.m) | 4.54 |

Press Note:

India State of Forest Report 2013

Forest Survey of India (FSI) has been assessing the forest and tree resources of India since 1987, the results of which are published in its biennial India State of Forest Report (ISFR).

The ISFR 2013 reports an increase of 5,871 sq. km. in forest cover overall in India with the maximum increase being observed in West Bengal (3,810 sq. km.) followed by Odisha (1,444 sq. km.) and Kerala (622 sq. km.).

Change in Forest Cover of West Bengal between 2011 and 2013

| | | | |
|-----------------|----------------|--|--|
| 2011 assessment | 12,995 sq. Km. | Change : increase in 3,810 sq. Km. | Increase in forest cover mainly due to coppice growth and afforestation inside the forests, growth of commercial plantations and shade trees in tea gardens, inclusive of trees outside areas. |
| 2013 assessment | 16,805 sq. Km. | | |

The forest cover reported in ISFR includes all lands with a tree canopy density of 10% and above and have a minimum area of 1 ha. It encompasses all types of land irrespective of ownership, land use and legal status.



Major Forest Types of West Bengal (Champion & Seth 1968)

| Group | Forest type | Location | Area (sq. Km.) | Major species |
|-------|--|--|----------------|---|
| 1B | Northern Tropical Wet Evergreen | Plains of North Bengal upto 150m altitude | 167 | Sal, Nageshwar, Jam, Latore, Malagiri, Lali, canes |
| 2B | Northern Sub-Tropical Semi-Evergreen | North Bengal | 25 | Champ, Panisaj, Gokul, Angare |
| 3C | North India Moist Deciduous | North Bengal | 1757 | Sal, Champ, Sissoo, Chikrassi, Panisaj |
| 4B | Littoral and Swamp-Mangroves | Sundarbans | 4263 | Sundari, Baen, Dhundal, Gnewa, Goran, Passur |
| 4D | Littoral and Swamp-Tropical Seasonal Swamp | Malda, North and South Dinajpur | 20 | Hijal |
| 5B | Northern Tropical Dry Deciduous | Bankura, Purulia, Midnapur, Birbhum, Burdwan | 4527 | Sal, Peasal, Kend, Mahul, Kusum, Asan, Bahera, Kend, Dhaw, Rahara |
| 8B | Northern Sub-Tropical Broadleaved Wet Hill | North Bengal 300m to 1650m altitude | 800 | Chilouni, Panisaj, Gokul, utis |
| 11B | Northern Montane Wet Temperate | North Bengal Hills 1650m to 3000m altitude | 150 | Magnolia, Champ, Oaks, Kawla, Pipli |
| 12C | East Himalayan Moist Temperate | North Bengal Hills 1500m to 1800m altitude | 150 | Chilaune, Katus, Panisaj, Lampate, Angare, Utis, Toon, Malagiri |
| 14C | Sub-alpine | North Bengal Hills 3000m to 3700m altitude | 20 | Rhododendrons, Salix, Berberis, Yew, Junipers, Birch |

Biogeographical Zones of West Bengal (Rodgers and Panwar 1998)

2C: Central Himalayas (Darjeeling district)

6D: Chhotonagpur Plains of Deccan Peninsula (Purulia and part of Bankura district)

7B: Lower Gangetic Plains (Jalpaiguri, Coochbehar, North and South Dinajpur, Malda, Murshidabad, Nadia, Burdwan, Birbhum, East and West Midnapur, North 24 Parganas and part of Bankura and South 24 Parganas districts)

8B: Eastern Coast (Part of South 24 Parganas district).

Joint Forest Management:

Origins

Joint Forest Management originated in West Bengal at the Arabari Forest Range in West Midnapore in 1971. The major hardwood of Arabari is Sal, a commercially profitable forest crop. Ajit Kumar Banerjee, IFS, a silviculturist, working for the Forest Department as the Divisional Forest Officer, was conducting trials which were constantly being disturbed by grazing and illegal harvesting by the local populace. At the time there were no initiatives for sharing of forest resources between the government and the locals, with the government considering many of the locals no more than "thieves". The forest official, against the suggestions of his coworkers, sought out representatives of eleven local villages and negotiated the terms of a contract with an ad hoc Forest Protection Committee (FPC). The initial program involved 618 families managing 12.7 square kilometres of forests classified as "degraded". 25% of profits from the forests were shared with the villagers in terms of Government of West Bengal Forest Department Forest Branch No.1118-For./D/6M-76/65 dated 7.3.1987. The experiment was successful and was expanded to other parts of the state. JFM is still in force at Arabari.

JFM Current status

Government of India, came up with a circular dated June 1, 1990, supporting the involvement of village communities and NGOs in the regeneration, management and protection of forests. The other state governments in India followed suit at ratifying this participatory forest management regimes in their respective states. Thus it took 43 long years for democracy to percolate to the grassroots level in the forestry sector. In recognition to the large-scale success of the JFM in regenerating the degraded forests, the FPCs of West Bengal were rewarded with the Paul Getty award in 1993. The FPCs have been renamed Joint Forest Management Committees (JFMCs).

The success of JFM in West Bengal was the result of a revolutionary change of mindset of the forest bureaucracy that of putting "people first" strategy into practice. This concept has drastically metamorphosed the Forest Department's frontline set-up and made it one of the most trusted bureaucratic entities to the people at the grassroots. The confidence that a frontline forest staff enjoys today amongst the participating forest- fringe communities is remarkable. In wildlife-depredation-prone areas, at several forest divisions in West Bengal, this inter-relationship has played an important role at the mitigation of the conflict.

The achievement of the West Bengal Forest Department in this aspect, through the JFM, is exemplary. Not only has the JFM model been widely adopted today as an effective strategy in the protection of forests, but the model has presently been promoted widely by several international bodies, including the World Bank, in the management of other common property natural resources like, fisheries, grazing land, irrigational water sources etc as well. Thus, the JFM model, which had developed in a small way in response to the ongoing conflict situation in the forestry sector, has today proved to be a much acclaimed Government-People partnership strategy at grassroots level.



Progress of Afforestation

| Year | Area in Ha. |
|---------|-------------|
| 2009-10 | 15,043 |
| 2010-11 | 14,101 |
| 2011-12 | 10,374.23 |
| 2012-13 | 10,560 |
| 2013-14 | 14,864 |



Status of distribution of usufructuary benefit share to JFMCs in West Bengal

| Year | No. of JFMCs involved | No. of Beneficiaries | Amount (Rs in lakh) | JFMC share per capita (in Rs) |
|-----------|-----------------------|----------------------|---------------------|-------------------------------|
| 1995-1996 | 163 | 20311 | 123.37 | 607.40 |
| 1996-1997 | 354 | 42361 | 243.45 | 574.70 |
| 1997-1998 | 248 | 32156 | 251.24 | 781.32 |
| 1998-1999 | 339 | 35530 | 287.00 | 807.76 |
| 1999-2000 | 445 | 50989 | 402.00 | 788.00 |
| 2000-2001 | 424 | 56479 | 455.50 | 806.00 |
| 2001-2002 | 520 | 45662 | 580.00 | 1,270.00 |
| 2002-2003 | 1454 | 45662 | 430.01 | 942.00 |
| 2003-2004 | 1454 | 51047 | 548.75 | 1,075.00 |
| 2004-2005 | 1510 | 60150 | 509.25 | 846.00 |
| 2005-2006 | 1944 | 56979 | 592.00 | 1,039.00 |
| 2006-2007 | 1967 | 57864 | 634.57 | 1,097.00 |
| 2007-2008 | 743 | 90103 | 1511.23 | 1,677.00 |
| 2008-2009 | 583 | 64344 | 1487.96 | 2312.00 |
| 2009-2010 | 233 | 24407 | 922.36 | 3779.00 |
| 2010-2011 | 327 | 33585 | 959.70 | 2857.53 |
| 2011-2012 | 625 | 114398 | 1713.28 | 1497.65 |



RKVY E.D KUILIBAD 2010-11
DHADIKA BEAT, GARHBETA RANGE

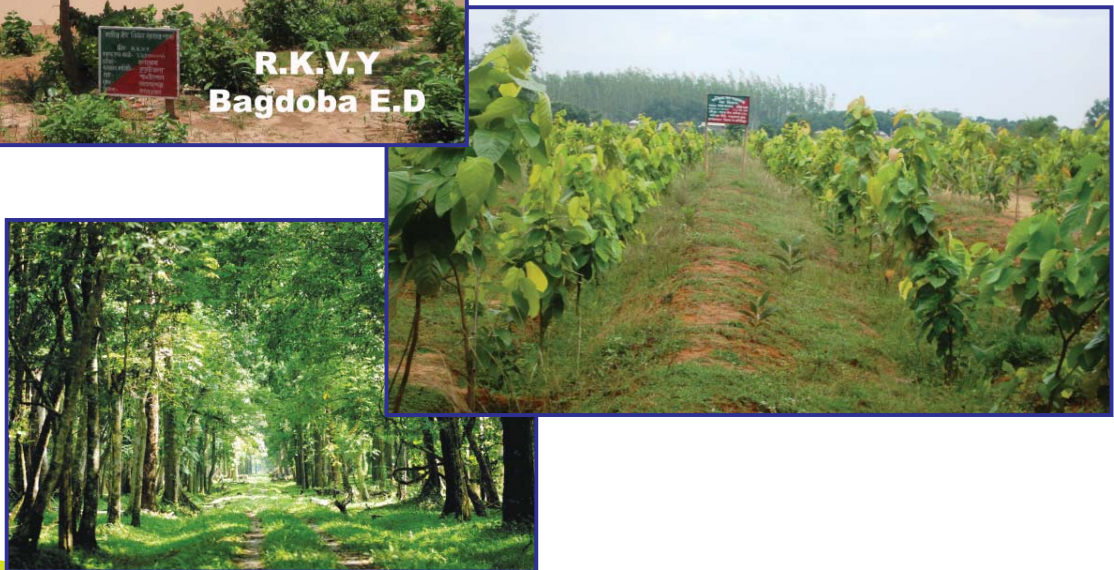


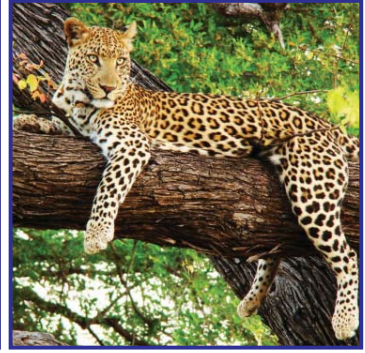
Status of JFMCs in West Bengal

| Zone | Division | Total No. of JFMC | Area Protected (ha.) | No. of Members | | | | | |
|---------------------|----------------|-------------------|----------------------|----------------|--------------|---------------|---------------|---------------|---------------|
| | | | | Male | Female | Total | S.C. | S.T. | Others |
| Hilly | Darjeeling | 74 | 14412.878 | 3864 | 426 | 4290 | 139 | 107 | 4044 |
| | Kalimpong | 64 | 26237.86 | 3582 | 195 | 3777 | 204 | 875 | 2698 |
| | Kurseong | 46 | 13287.62 | 1165 | 1643 | 2808 | 431 | 1198 | 1179 |
| | Wildlife I | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dooars-Terai | Jalpaiguri | 63 | 20284.16 | 11431 | 638 | 12069 | 5255 | 3399 | 3415 |
| | Baikunthapur | 66 | 14023.78 | 6192 | 131 | 6323 | 4529 | 790 | 1004 |
| | Cooch Behar | 26 | 4102.90 | 2932 | 209 | 3141 | 1497 | 517 | 1127 |
| | Wildlife III | 26 | 7020.79 | 4360 | 180 | 4540 | 727 | 2483 | 1330 |
| | B.T.R.(E) | 17 | 9331.09 | 3340 | 103 | 3443 | 1548 | 1334 | 561 |
| | B.T.R.(W) | 33 | 25595.80 | 4064 | 489 | 4553 | 768 | 2563 | 1222 |
| North Bengal Plains | Raigunj | 21 | 1162.6 | 1727 | 74 | 1801 | 864 | 412 | 525 |
| | Malda | 3 | 103.368 | 381 | 47 | 428 | 240 | 180 | 8 |
| South Bengal | Midnapur | 363 | 45956.452 | 33657 | 14423 | 48080 | 9958 | 8504 | 29618 |
| | Jhargram | 474 | 52179.31 | 38254 | 2449 | 40703 | 9135 | 14906 | 16662 |
| | Kharagpur | 254 | 27437.645 | 18421 | 12281 | 30702 | 6950 | 9504 | 14248 |
| | Rupnarayan | 213 | 26397.78 | 26331 | 1343 | 27674 | 6419 | 7814 | 13441 |
| | Bankura(N) | 542 | 43,592.94 | 50799 | 2094 | 52893 | 19925 | 7917 | 25051 |
| | Bankura(S) | 630 | 44460.37 | 53977 | 4857 | 58834 | 14189 | 18411 | 26234 |
| | Panchet | 231 | 28466.18 | 27328 | 1562 | 28890 | 11033 | 4674 | 13183 |
| | Purulia | 213 | 30729.22 | 20741 | 867 | 21608 | 6012 | 6944 | 8652 |
| | Kangsabati (N) | 244 | 17641.2 | 23578 | 851 | 24429 | 5677 | 8089 | 10663 |
| | Kangsabati (S) | 305 | 26114.72 | 29561 | 569 | 30130 | 10899 | 4293 | 14938 |
| | Burdwan | 74 | 20239.38 | 16582 | 3186 | 19768 | 7518 | 5349 | 6901 |
| | Durgapur | 24 | 2436.439 | 1957 | 1964 | 3921 | 1112 | 1405 | 1404 |
| | Birbhum | 198 | 10347.32 | 16869 | 352 | 17221 | 6095 | 5583 | 5543 |
| | Howrah | 4 | 479.08 | 815 | 319 | 1134 | 537 | 238 | 359 |
| | Nadia-Msd. | 11 | 916.24 | 957 | 44 | 1001 | 246 | 254 | 501 |
| Purba Medinipur | 19 | 1813.11 | 4760 | 1097 | 5857 | 1256 | 50 | 4551 | |
| Estuarine | S.T.R. | 11 | 12844 | 3958 | 107 | 4065 | 3642 | 254 | 169 |
| | 24-Pgs.(S) | 40 | 42534 | 10801 | 10718 | 21519 | 11830 | 514 | 9175 |
| TOTAL | | 4289 | 570148.232 | 422384 | 63218 | 485602 | 148635 | 118561 | 218406 |

Eco-Development Committees (EDC) in West Bengal

| Name of P.A./Division | Number of EDC | Number of JFMC | Total (EDC+ JFMC) | Number of EDC Member | Number of JFMC Member | Total Members (EDC+JFMC) | Total area Protected (in Ha) |
|------------------------------------|---------------|----------------|-------------------|----------------------|-----------------------|--------------------------|------------------------------|
| Wildlife-III (including Jaldapara) | 33 | 25 | 58 | 7667 | 3920 | 11587 | 23011.18 |
| Mahananda Wildlife Sanctuary | 16 | 0 | 16 | 4961 | 0 | 4961 | 12421.05 |
| Sundarban Tiger Reserve | 14 | 11 | 25 | 4483 | 4065 | 8548 | 25194 |
| 24-Parganas (South) | 0 | 40 | 40 | 0 | 24664 | 24664 | 43734 |
| Gorumara National Park | 12 | 0 | 12 | 2165 | 0 | 2165 | 7669.70 |
| Senchal Wildlife Sanctuary | 12 | 0 | 12 | 2371 | 0 | 2371 | 3800.51 |
| Singhalila National Park | 3 | 0 | 3 | 225 | 0 | 225 | 649.16 |
| Neora Valley National Park | 6 | 0 | 6 | 2892 | 0 | 2892 | 5673.86 |
| Buxa Tiger Reserve (East) | 14 | 17 | 31 | 1627 | 3443 | 5070 | 32866.06 |
| Buxa Tiger Reserve (West) | 6 | 27 | 31 | 612 | 4252 | 4864 | 25595.80 |
| Grand Total | 116 | 120 | 236 | 27003 | 40344 | 67347 | 180615.32 |





Wildlife (<http://www.wildbengal.com/>)

The state of West Bengal is home to a rich and bewildering variety of wildlife. From the famous Royal Bengal Tiger that stalks its prey with legendary cunningness in the Gangetic delta to the one-horned Indian Rhinoceros and the leopard lurking in the foothills of the Himalayas, West Bengal boasts of an amazing array of flora and fauna that rivals the finest such collection of species anywhere in the world. The State is also rich in butterfly species and in bird life. Migratory birds come to the state during the winter.

There are six National Parks and fifteen Sanctuaries in West Bengal. Wildlife in these Protected Areas include the Royal Bengal Tiger, Indian Rhinoceros, Indian Elephant, Spotted Deer, Bison, Leopard and Crocodile. The high altitude forests like Singalila National Park shelter Barking Deer, Red Panda, Himalayan Black Bear, Serow, Pangolin, Minivet and Kalij pheasants.

Sundarban is the only mangrove forest in the world which is the home of Tiger. In addition to the Tiger, the Sundarbans host many other endangered species like the Ganges River Dolphin, river terrapin, estuarine crocodile etc. The mangrove forest also acts as a natural fish nursery, supporting coastal fishes along the Bay of Bengal. Sundarban Biosphere Reserve (SBR) was constituted by Government of India (GOI) in 1989 and it received the recognition of UNESCO under its Man and Biosphere (MAB) Programme in November, 2001. Sundarban National Park, forming the core area of Sundarban Tiger Reserve (STR), received recognition as World Heritage Site by UNESCO in 1987. STR constituted by GOI under Project Tiger scheme in 1973 has the highest tiger population in the world.



| National Park | Sanctuary | Sanctuary | Sanctuary |
|---------------|-----------------------|-----------------|----------------|
| Singalila | Jorepokhri Salamandar | Ballavpur | Lothian Island |
| Neora Valley | Senchal | Ramnabagan | Buxa |
| Buxa | Chapramari | Bibhutibhusan | West Sundarban |
| Gorumara | Mahananda | Chintamoni Kar | |
| Sundarban | Raiganj (Kulik) | Sajnakhali | |
| Jaldapara | Bethuadahari | Halliday Island | |

Revenue from Major heads

| Head | 2011-2012 (Rs in lakh) | 2012-2013 (Rs in lakh) | 2013-2014 (Rs in lakh) |
|---------------------------|------------------------|------------------------|------------------------|
| Timber & Poles | 6734.15 | 7020.14 | 6085.54 |
| Firewood | 91.40 | 39.14 | 126.12 |
| Grazing | 0.06 | 28.49 | 0.0 |
| Bamboo | 4.91 | 1.26 | 2.24 |
| Non Timber Forest Produce | 104.85 | 14.18 | 1241.60 |
| Other | 2211.34 | 3320.67 | 3917.92 |
| Total | 9146.71 | 10423.88 | 11346.42 |

Expenditure under Major heads

| Head | 2011-2012 (Rs in lakh) | 2012-2013 (Rs in lakh) | 2013-2014 (Rs in lakh) |
|--------------|------------------------|------------------------|------------------------|
| State Plan | 7511.86 | 7695.38 | 14937.67 |
| CSS & CS | 1798.88 | 915.42 | 1221.31 |
| Non Plan | 23746.49 | 25235.10 | 26329.45 |
| Total | 33057.23 | 33845.90 | 42488.43 |

Administrative Units under the Forest Directorate

| Category | Circle | Division | Range | Beat |
|-------------------|-----------|-----------|------------|------------|
| Territorial | 7 | 22 | 243 | 509 |
| Wildlife | 5 | 9 | 86 | 142 |
| Social Forestry | 1 | 7 | 52 | 72 |
| Soil Conservation | 1 | 3 | 22 | 39 |
| Functional | 4 | 17 | 71 | - |
| Total | 18 | 58 | 474 | 762 |



Sanctioned strength of the Forest Directorate

| Name of Post | Strength |
|--|-------------|
| IFS | 126 |
| WBFS | 126 |
| Forest Ranger | 580 |
| Deputy Ranger | 1277 |
| Forest Guard & Head Forest Guard | 2675 |
| Driver | 146 |
| Ministerial staff (Clerk, Head clerk, Accountant, Typist, PA, Draftsman, etc.) | 930 |
| Group D (Orderly, Peon, Dakwala, Majhi, etc.) | 1740 |
| Total | 7600 |
| Banamajdoor | 555 |
| Banasramik | 2750 |

West Bengal Forest Development Corporation Limited (<http://wbfdc.com/>) :

WBFD Ltd. came into existence in 1974 on the recommendation of National Commission of Agriculture in their Interim Report in 1972 on “Production Forestry – Man-Made Forests”. Registered as a Company and incorporated as per Companies Act, 1956; the Corporation started functioning on 19th November, 1974. Broad Objectives are

- To help conserve fragile ecosystem of Darjeeling Himalayas in the areas it operates.
- To promote JFM in South West Bengal.
- To offer timber, non-timber forest produce and value-added forest products at reasonable prices.
- To develop awareness for conservation of nature through ecotourism.
- To help develop and promote wood-based industries.
- To generate rural employment through forestry and related activities.
- To help popularize the use of eco-friendly inputs like biofertilizer for enhancement of soil fertility.

West Bengal Pulpwood Development Corporation Limited:

WPDC Ltd. was formed in 1982. It has plantations over 6500 ha in area. It works on 50%:50% Private and Government participation model where investments and proceeds are shared by both the parties. It works on degraded land of small and marginal farmers.

West Bengal Wasteland Development Corporation Limited:

WBWLDC Ltd. was formed in 1989. It has planted over 2800 ha of drought prone areas in Bankura, Purulia and Paschim Medinipur. Here 100% resource mobilization and investment is made by the Government.

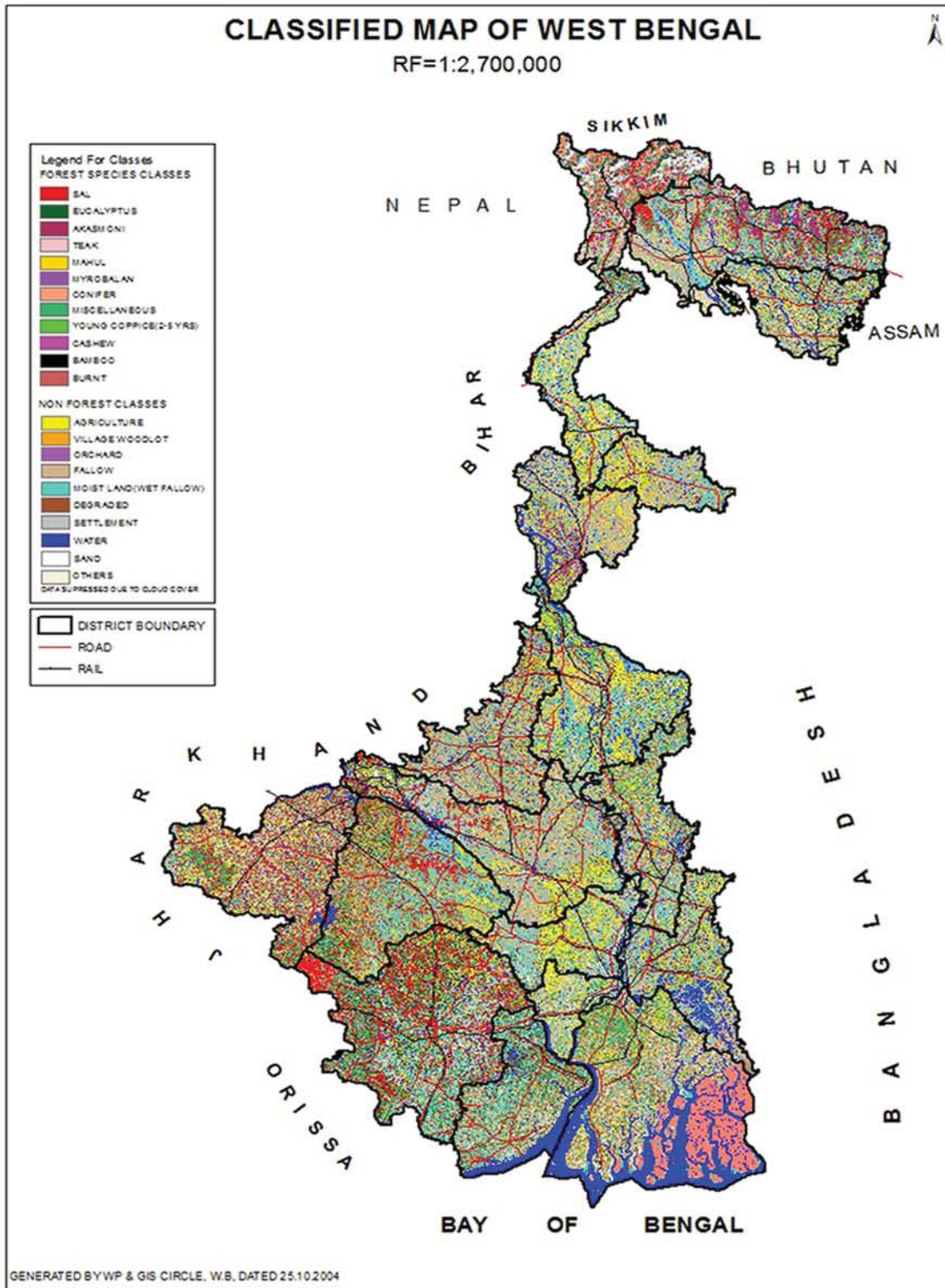
West Bengal Zoo Authority:

Formed in 2010 the WBZA is a Statutory body chaired by the Chief Secretary, West Bengal. It has administrative control over 11 zoos in West Bengal including the Alipore Zoo and the Darjeeling Zoo.

West Bengal Forest & Biodiversity Conservation Society:

WBF&BCS is a registered society running the 8-year “West Bengal Forest & Biodiversity Conservation Project” worth Rs. 406 crores in West Bengal funded by JICA since 2012-13 (www.wbfbc.org/).

**The maximum increase in forest cover reported in West Bengal
(3,810 sq. km.) India State of Forest Report 2013
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অব্রজের পথে মানুষের সাথে

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