

Committee members

1. Members
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Bhandari
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4. Additional Chief Conservator
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6. Representative
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8. Shri Govind Singh Rawat
Block Prammukh - Joshimath
9. Shri Chann Singh Soodal
C.F. Garhwal Circle

1. Agenda
2. Views expressed by members
3. Work plan
4. Visit to the sites
5. Discussion with Village
representatives
6. Report by each member
- discussion
7. Final report and
recommendations

Kangilab
Mooney
Bor
Kaizadeh
Bogchi

Scientific Forestry

Sir Dietrich Brandis 1864 I G F

↓
Forest Act 1865 Forest officers to inspect & tree clad areas
↓
Reserve & Protected forests

Basic principles 1894

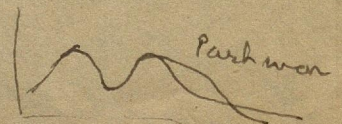
- (i). - Sole object of ¹⁹⁵⁴Administering the forest ^{is for the} benefit of public.
- Constitution & preservation of a forest involves
- regulation of rights & restriction of privileges of user in the forests by neighbouring populations
- (ii). Forests situated on hill slopes should be maintained as protection forests
- to preserve the climatic and physical conditions of the country
- to protect the cultivated plains that lie below them from the devastating action of hill torrents
- (iii). Forests which are the reservoirs of valuable timber should be managed on commercial lines as source of revenue to the state
- (iv). Demand for cultivable land must be met
- honeycombing of a valuable forest by patches of cultivation should not be allowed
- Cultivation must be permanent & demand must not encroach upon minimum area of forests
- (v). Forests that need yield inferior timber, fuel / fodder or used for grazing should be managed mainly in the interest of local population - but prevent annihilation

Based on this forest policy

- Conservation
 - Poling according to working plan
 - Regeneration
- } Treat etc

Water catchment area Simla
Best forest source of continuous water supply.

World war I - depletion
Improved by conservation
World war II - heavy depletion



1. Comprehensive forest policy of 1894

2. Demands an increase

- Agricultural
- Industrial — Wood pulp — Newspaper
- Housing — Synthetic fibre

3. National Forest policy

Draw backs

- Inadequate
 - Ill distribution
 - Low productivity
- Forest used as mines

Remedy

- Fast growing
- Site suitable - Ecology
- High yield
- Modernizing method of felling
- Conversion transport
- Minimum waste
- Spokesman of people - message of forestry to masses + convince them of certain restriction on the use of forests

4 History

Delhi Sultan
Sher Shah Suri
↓
Weakening of
Authority -
uncertain political
denudation of
forests
Englishman
1894
Kurangzib
Sera

Thick forests - Chitarkoob, Danda Karanya, Panchvati
Chinese pilgrim Huen Sang - Thick forest in Vrindaban
Alexandra 327 Bc impenetrable forests along Indus.

Kantilya - Forest officer — Protection
Ashok - Planting of useful trees — Planting of new sps
along roads + camping grounds. — Preservation of wild-life

Sher Shah Suri - Delhi Patna Road

Jehangir - China - Awe-Subari - elephants roamed in N.P.

Marathas gonds - planted Mangoes

British Rule + increase towards westernization / Tahli Chain
Increase in standard of living

↳ Teak, Mahogany
↳ Ships
↳ Railways — bases Sleepers

Englishman realized it to be against imperial interests
Contractors appear on the scene - greed - no scruples
moral fabric degeneration

Forest and water

Protection of watershed land

- to control erosion
- to control floods

Restore the forest by any available means

Forests consume a large quantity of water - (people are deprived)

Rain / storm water

↓
canopy of tree - trunk

↓
litter, humus

↓
underground subsoil

Role of litter humus - heavy sod
- better humus

No humus - runs off fast - erump soil particles

2 No sediments.

Thick spongy

↓
Eroded particles
Floods clog pores -
enhance run off

Effects of timber cutting, defective logging, overgrazing

Gentle climatic conditions

↓
Sawd silviculture

Individual trees
defection

heavy
cutting

Removal of
all.

App 600

Research information -

1. Forest vegetation like all other plants - consume water

- interception
- transpiration
- Evaporation

2. Removal of a part of timber will reduce the above +
would provide more water

3. Such thinning would result in site deterioration - foresters
should use caution - careful observation

4. If site & soil deterioration were sufficient to cause
rainfall excesses - snow melt also - in substantial
amount → overland flow, passing over inadequately
prepared soil - will almost always cause soil

- ① erosion & flashy ^{silt laden} floods -
- ② less of water will be stored - hence less water
in summer - springs will dry
- ③ change stream habits - far worse

Res. results
Severe opening of the
forests increased
the amount of
water available
water a full
30% as compared
to uncut
condition.

5. If no damaging rainfall excess results from timber cutting - site association is not dangerous opening for of forests should increase Total yields of usable water, build up peak discharges allow water to pass to ground water & produce sustained stream flow from deep sources - perennial springs.

✓ But - ① In areas, where floods and sediments cause damage

- ② streams carry too much of water
- ③ Concentrated in short, abrupt peaks -
- ④ Carry large amounts of sterile sediment that clog channels, ruin farm lands and (silt dams)

It is advisable to keep the forest cover as dense as possible to

- ① Provide protection to soil to prevent erosion
- ② Provide opportunity for consumption of water

Forest vegetation stabilizes the soil, minimizes soil erosion

- It also intercepts & evaporates rain water
- It helps in great reservoir of the soil on the watershed land.

✓ 601. Therefore, only lightest & most careful timber cutting or perhaps no cutting at all

603 watershed - Concave or trough shaped area - run off drains towards a single channel

Bad management

- floods
- Erosion
- Siltling of dams, reservoirs

- (1) Restoring & retaining good cover of vegetation & litter against soil compaction & erosion
- (2) Stabilizing gulches, waterways.

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Flood
Retard run off
reduce / prevent
loss of soil
from water
shed lands

Soil & mulch - soil mulch

Retention storage - Veg. cover - soil cover of litter & humus

Veg. lowers air temp. - accumulator of snow
delayed yield of water - snow takes 1-2 weeks longer

Watershed is satisfactory - run off hills
- gulches

Where flood hazard is high

Maximum possible cover of Veg. and litter

Canopy which will intercept & evaporate maximum

Minimum of disturbance to the litter | Logging operations

Where watershed management requires must be carried out
there should be no logging
good forest management
good soil - good water go together

✓ Elm tree
15,000 lbs of
water on clear
hot, dry day.

good forest
management

Top soil - top soil gone - the land is dead
↓ horizon
Erosion

Forebreed regulation - to cut each year a volume of timber no greater than the volume that grew during the year.
Layers of wood added - 250 board feet per year
than trees with a volume of 250 board feet or less can be removed from the acre

Forestry management:

- (1) Economic
- (2) Protection
- (3) Bioaesthetic

Govt. owned Graham forests are gift of nature.

Working plan - written scheme of management aiming at continuity of policy & action, and controlling the treatment of a forest

Objective ← Eco
Protection
Bioaesthetic

Working plan prepared for forest
Part I. Reconnaissance

← nature of terrain
climate
soil
effect on forest

1. Accurate assessment of ecological factors
2. History of forests - Working plan given
3. Report to C.F.
4. Conference of persons acquainted with forest
5. Preliminary cut forest - compartments -
inspected in detail - history, physiography,
soil, growing stock, regeneration

Part II
Maps - Silvicultural plan

Forest development corporations

Erosion - removal of top soil - rich

"Conserving
soil"
pp 100

Slope Rain fall - run off - quantity, distribution
& intensity

Slope - Steeper the slope faster the run off

As velocity doubles, cutting power of the run off is
increased 4 times

Carrying capacity of run off increases 64 times

Sheet erosion → rills → gully erosion

Slips → large amount of mud slides down hill

Heavy saturation on steeper slopes, followed by
rain - above an impervious layer

Organic matter

→ Forest mantle - litter
of compressed 1"-2" thick

Stream bank control -

banks of stream are cut & deposited on sand bars
dams, reservoir, etc

Stabilize by planting

Willow cutting →

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Trees are a crop. They should be handled like a
crop not mine. The practice of mining most prevalent
Partial cutting - best trees cut → "destructive selection"
↳ spread the harvest over several years.

Smile ←

[Watershed forests - water holding capacity increases
Deforested watersheds are breeding places for floods
and erosion

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* Humus prevents the freezing of soil, before snows
come - later snows help. If no ^{organic} cover, than soil
may freeze before snows come - such soils can't
absorb run off when snow melts

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Combination of topography, depleted cover & continuous
rains of high intensity → floods