

Does the ban on green fellings benefit the forests?

– perspectives from ecological and productive functions.

Dr K Sasikumar

Ban on felling: *Bane* or *Boon*?

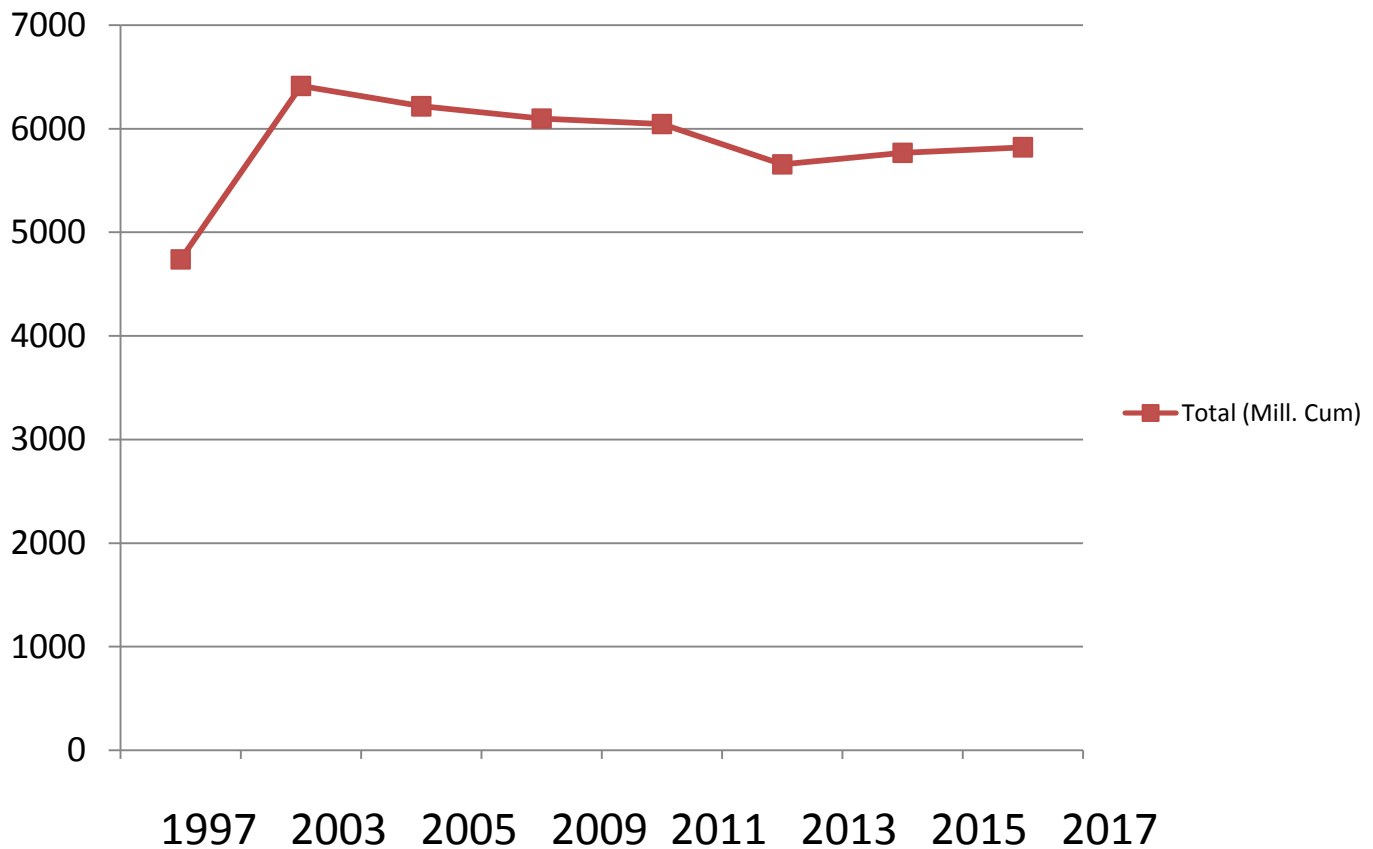
1. Growing stock

Non-felling will increase overall GS

Non-measurable class trees entering into measurable class

Natural death of trees won't affect increase in volume much

Growing Stock (Mill. Cum)



(Source: SFR Reports of FSI)

2.Increment (growth rate)

Positive increment vs Highest possible increment?

Analysis of historical time series data of GS

Year	Growing stock	Rate of growth
1960	G1	
1970	G2	$R1 = (G2 - G1)/10$
1980	G3	$R2 = (G3 - G2)/10$
1990	G4	$R3 = (G4 - G3)/10$
2000	G5	$R4 = (G5 - G4)/10$
2018	G6	$R5 = (G6 - G5)/18$

Case A:

R3, R4 & R5 is greater than R1 & R2

Case B:

R3, R4 & R5 is lesser than R1 & R2

3. Regeneration of forest

Increase in stand density causes overstocking in normal stand

Spatial constraint for

- *light demanders* to regenerate &
- *shade lovers/ shade demanders* to establish and grow

4. Potential to mitigate climate change challenges

Carbon sequestration rate changes with age of the stand

Keep the forest at maximum growth rate

Over-stocked and Over-matured stands will put on lesser increment

When **carbon leakage** exceeds increment, **net carbon sequestration rate** will further sink and forest will become a net emitter of CO₂ rather than a sink of carbon.

5. Management implications

Change in stand structure of forests managed under uniform system as well as selection system.

3 scenarios:

1. Regeneration fellings (RF) *completed and area have been regenerated.*
2. RF *started but could not be completed.*
3. RF *could not be started.*

Implications:

1. Difficulty in regenerating the forest
2. Loss of rural employment
3. More fire hazard
4. Less resistance to Pest and Diseases
5. Revenue foregone for increment being wasted
6. Absence of scientific management

Criteria & Indicators

C 1. Change in stand structure

Indicator – Change in shape of ND curve

C 2. Change in Stand density

Indicator – Current BA/ ha > Yield table BA/ ha for a given crop dia.

C 3. Change in composition of young crop

Indicator – Actual No. of stems/ ha > Yield table no. for a given crop dia.

C 4. Change in Stand age

Indicator – Actual age of the stand > Rotation age corresponding to Stand crop diameter in Yield Table

C 5. Change in regeneration status.

Indicator – Results of regeneration survey.

Study on the Impact of ban on green felling of Chir Pine (*Pinus roxburghii* Sarg.)

(Manoj Chandran *et al.*, 2012)

The breakup of plots according to felling type:

Final felling done (ff) -49 plots

Seeding felling done (sf)-41 plots

Final felling proposed (ffp)-35 plots

Seeding felling proposed (sfp)-55 plots

1. Regeneration survey & analysis of growing stock

Initial regeneration not a problem

Scientific green felling in fully regenerated sun facing slopes desirable (For progress of regeneration to higher dia-class & thus increase in Growing Stock)

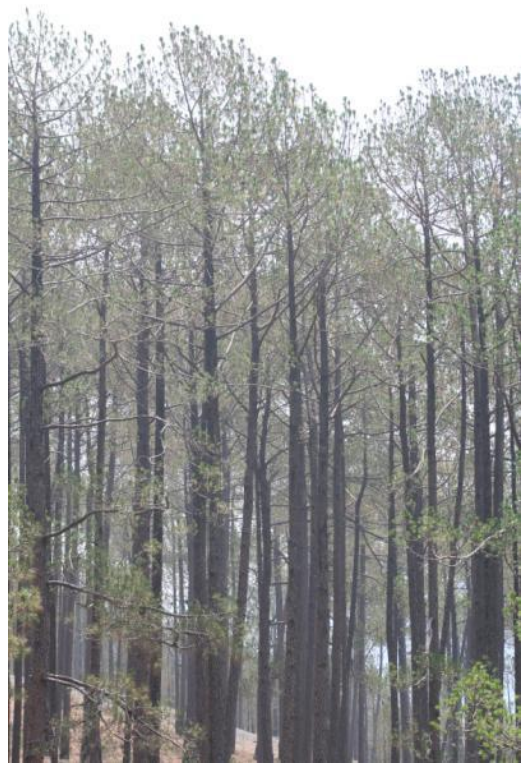
Steep slopes to be left to nature

Shady slopes do not respond well to SW (Shelterwood) system

SW sys doesn't allow smooth progression of succession



Different stages of establishment of regeneration in Chir pine forests



2. Soil analysis

Low pH in un-felled plots

No significant difference in **N, P, K, Soil Organic Carbon, Porosity**

3. Biodiversity Assessment

Unfelled plots in **shady slopes** – more tree diversity

Unfelled plots in **sunny slopes** – lesser tree diversity

No significant difference in **shrub and herb diversity**.



Diversity of tree growth, shrubs, herbs and grasses in Chir pine forests

Study on Impact of Ban on Green Felling on Biophysical status of Forest (Chir)

(FRI, 2018)

1. Ban has not translated into a steady increase in GS
- 2. No regular shifting of trees from younger to middle and higher class - Sustainability is at stake**
3. Trees are restricted to either 1 or 2 dia-classes
- 4. Preponderance of mature trees over younger trees**
5. Growing Stock – more than immediate preceding working plan, but not maintainable at 1980 level

6. Indefinite postponement of seeding and final felling – shading causes weakness and death of seedlings

7. Stoppage of thinning – weak regeneration and unproductive crop

8. Subsidiary operations neglected – accumulation of inflammable material

9. Enormous reduction in wood production – local economy affected

Impact of ban on green felling on the regeneration and establishment of Silver fir & Spruce

(Sayeed, 2014)

1. **Phyto-sociology**

No difference in diversity of trees, shrubs, herbs between felled and un-felled plots

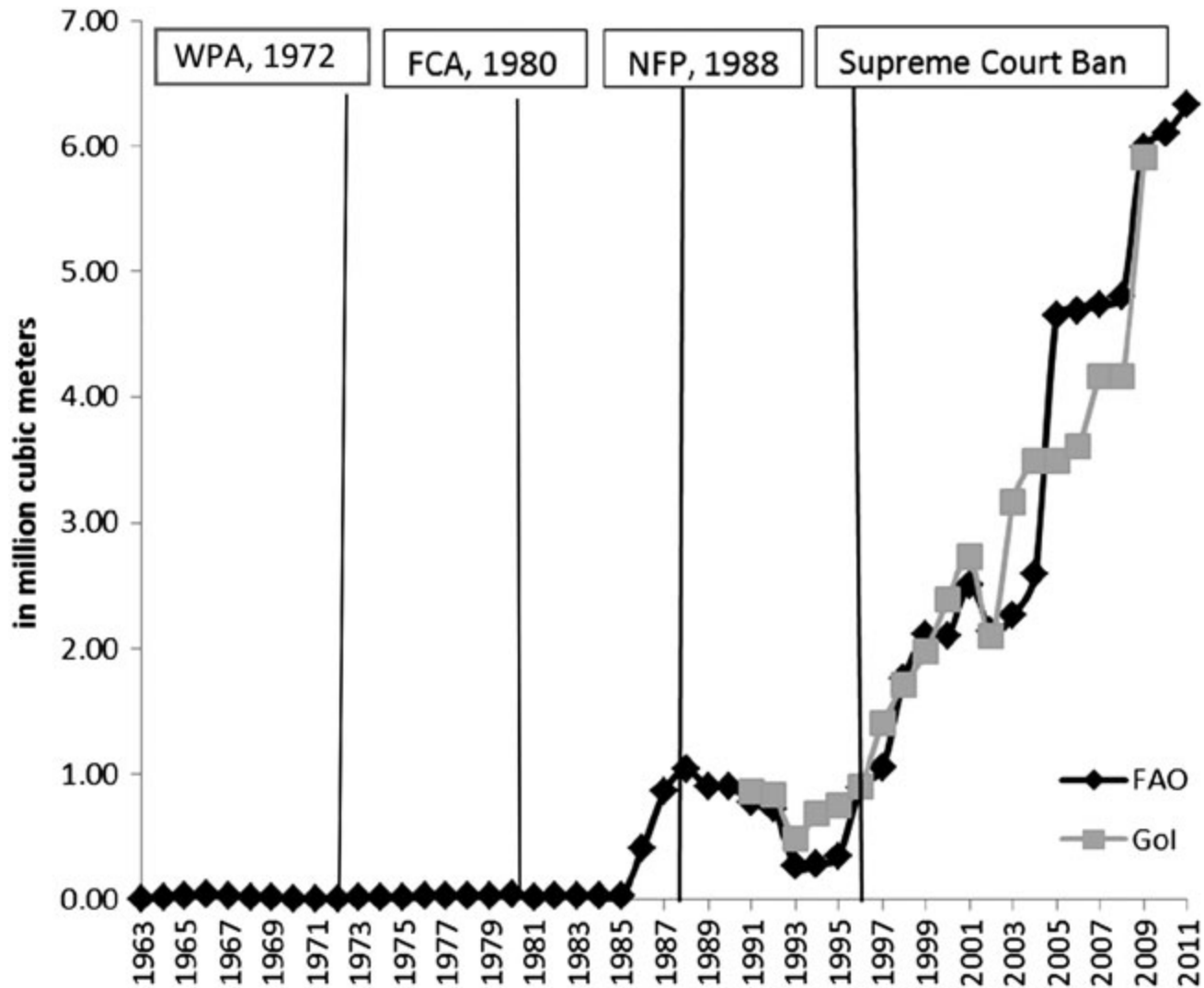
2. **Regeneration** of Principal and associated species in unfelled plots were scanty to non-existent

3. **Growing stock** of un-felled plots higher than felled plots
Higher percentage of smaller dia classes in felled plots

4. **Soil analysis** – N, P, K is rich in unfelled sites
pH less in un-felled sites

5. **Scientific felling recommended.**

Roundwood import from 1963 to 2011 in India



Source: ICFRE (2011) and FAO (2016)

CONCLUSION:

1. Total ban on green felling is not beneficial
2. Scientific felling on case to case basis

IA No.3840 of 2014 in WP (C) No.202 of 1995 – Nurpur, Bharari and Paonta ranges of Kangra, Bilaspur and Sirmaur Dts, respectively. Sal, Chir & Khair.

3. More scientific studies and more appeals.
4. Scientific prescriptions in WP taking *bonafide* requirement of locals into consideration

Thank you