

**Political Representation and Forest Conservation in Jharkhand:
Do Regimes of Property Rights Matter?**

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Structure of the Presentation

- Introduction
- Representation and Forest Conservation
- Property rights and Forest Conservation
- Research question
- Methodology
- Results

Introduction

- Forests cover nearly 31 per cent of the world and are home to more than 80 per cent of all terrestrial species of animals, plants and insects. (*The Sustainable Development Goals Report 2023*)
- Forests significantly reduce the risk of natural disasters.
- Around 1.6 billion people, including more than 2,000 indigenous cultures, depend on forests for their livelihood (*United Nations, 2021*).
- Investing in forests and forestry represent an investment in people and their livelihoods, especially the rural poor, youth and women.
- One of the Sustainable Development Goals aims to “restore, protect, and promote sustainable use of terrestrial ecosystems, combat desertification, sustainably manage forests and halt and reverse land degradation and halt biodiversity loss”.

Introduction

- In the Indian context, 275 million individuals are dependent on forests for calorie intake, minor forest produce for domestic use and sale in market, and inputs for their agriculture (World Bank, 2005; Gulzar et al., 2024).
- A large number of these individuals belong to Scheduled Tribes (STs), a collection of about 100 million people of varied tribal communities who live predominantly in rural areas and continue to experience higher levels of poverty than others.
- Global forest area has been declining over the years and it has reduced by about 420 million hectares between the period 1990 and 2020 (FAO, 2024).
- It is critical to note that deforestation alone contributes to around 12-20% of global greenhouse gas (GHG) emissions (Watson and Schalarek, 2020).



Representation & Forest Conservation

- Political representation for STs at the Assembly Constituency level is linked with significantly improved forest cover (*Agarwal 2023*).
- The findings opens up possibilities for improving forest cover and biodiversity via a route which could prove to be a win-win, namely the political inclusion of socially disadvantaged communities at high levels of governance.
- Suggestive evidence was found that representation (Gram Sabha) enabled marginalized communities to better pursue their interests, which, unlike commercial operations such as mining, are compatible with forest conservation (*Gulzar, 2024*).
- The finding suggested that boosting formal representation for ST led to an average increase of tree canopy by 3% per year as well as a reduction in the rate of deforestation.
- The study indicated that two pathways for the positive effects – one, related to increased “Stewardship of the Forest” and the other related to more concerted “Opposition to the Mining Operations” (*Gulzar et al., 2024*).



Property Rights & Forest Conservation

- Contemporary research has shown that property rights, whether legally or tacitly recognized by the state, are essential components of sustainable use and management of resources by rural communities (*Dorji et al. 2005*).
- Where property rights are unambiguous, justly enforced, and secure, rights holders are more likely to invest in forest enhancing behaviors because they are more likely to capture the benefits of their investments (Mogoi, 2012).
- However, where incentives are incompatible with the challenges faced by rights holders (including their livelihoods needs), as when resource users and/or resource managers are denied the right to revenue from forest resources, their motivation to invest time and resources in sustainable management will be reduced.
- The loss of rights over resources may ultimately result in an open-access situation due to loss of incentives for management and more incentive for short-term optimizing behavior (*Hardin 1968*).
- The loss of local rights and the ineffectiveness and biased law enforcement by the forest department after the Private Forest Nationalization Act of 1957 contributed to rapid deforestation in Nepal (*Gilmour & Fisher 1991*).



Research Question

- *Does the impact of representation on forest cover vary with differences in property rights?*



Methodological Requirements for the Analysis

➤ *Does the impact of representation on forest cover vary with differences in property rights?*

- A geographical area with forest cover
- Have a population that is dependent on Forest resources
- With difference in property rights
- With a policy that implements/ensures representation

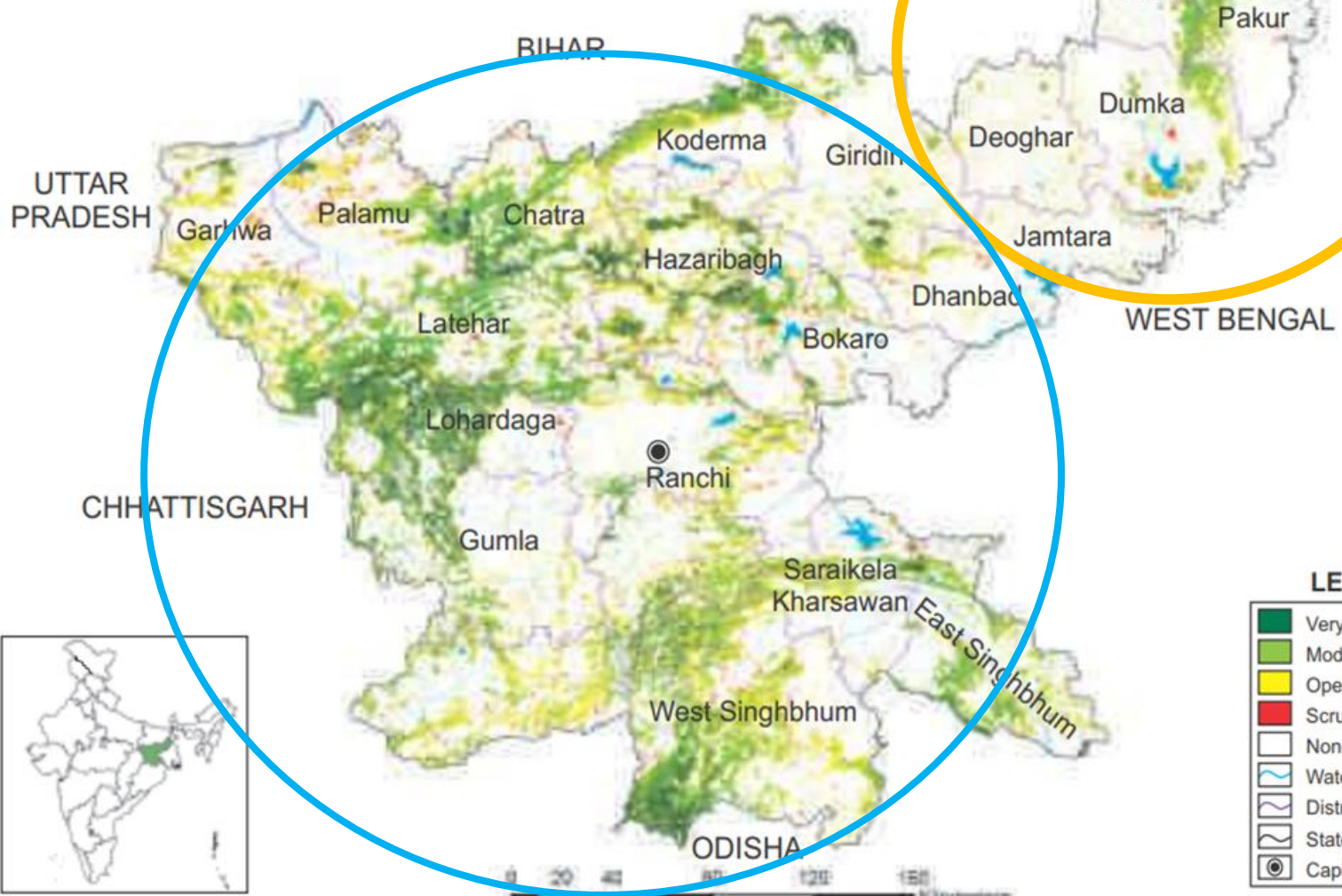




Santhal Pargana Tenancy Act



- Forest area is 23,721 sq. Km, 29.76% (State of forest report, 2021)
- 26 % is tribal population (32 Tribes)
- NTFPs provide feasible livelihood support for subsistence, safety net and cash income among the tribal community due to a dearth of alternative options, marginal agricultural return and small land holdings (Maske et al., 2011; Langat et al., 2016).



LEGEND

	Very Dense Forest
	Mod. Dense Forest
	Open Forest
	Scrub
	Non-Forest
	Water-bodies
	District boundary
	State boundary
	Capital

Chota Nagpur tenancy Act

Chota Nagpur tenancy Act (CNTA), 1908 Vs Santhal Pargana Tenancy Act (SPTA), 1949



Santhal Pargana Tenancy ACT (SPTA), 1949

- Prior to colonial power, Santhal Pargana area was never under the jurisdiction of any of the rulers. In the 18th century, East India Company introduced the zamindari system through the zamindars of Sultanbad (Maheshpur) and Ambar (Pakur) to increase their land revenue (*Thapiyal, 2020*).
- This was accompanied by the introduction of a market and monetary economy into the tribal economy. Due to this, the zamindars, money lenders, traders, contractors, and other service providers began to exploit the innocent tribals from their own land.
- As a result, this led to the Pahariya revolt in 1778. During this time, the British introduced an innovative administration system and passed the Act of 1872.
- Soon after the independence, with some amendments The Santhal Parganas Tenancy (SUPPLEMENTARY PROVISIONS) Act 1949 was passed.
- This Act extends to Dumka, Jamtara, Sahibganj, Godda, Deoghar and Pakur (*Judicial Academy Jharkhand Report, 2019*).

Chhotanagpur Tenancy Act (CNTA), 1908

- The Chotanagpur Tenancy Act 1908 (CNTA) was enacted by the colonial authorities after the Birsa Munda movement of the 1890s
- The movement was a grassroots response to colonial efforts to impose a new system of land tenure upon local cultivators and allow for land alienation (Upadhyaya 2009).
- These lands belonged to the original Munda and Uroan settlers.
- This Act extends to all of Jharkhand except the district under Santhal Pargana Act (*Judicial Academy Jharkhand Report, 2019*).





Santhal Pargana Tenancy Act

PESA Act



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- ChotaNagpur tenancy Act (CNTA),1908 Vs Santhal Pargana Tenancy Act (SPTA), 1949
- PESA, 2010 (All districts 16, except Bokaro, Dhanbad, Deoghar,Hazaribagh, Koderma, Girgidih, Chatra and Garhwa)
- PESA – 135 Blocks, 2071 Gram Panchayats (Source: Panchayati Raj department, Jharkhand)

Panchayat (Extension to the Scheduled Areas) Act, 1996

- The 73rd Constitutional Amendment which came into force w.e.f. 24th April, 1993, inserted Part IX in the Constitution of India and accorded Panchayats a Constitutional status as institutions of local self-governance for rural India.
- On the basis of the report of the Bhuria Committee submitted in 1995, Parliament enacted “The Provisions of the Panchayat (Extension to the Scheduled Areas) Act, 1996” popularly known as PESA Act.
- It extends Part IX of the Constitution with certain modifications and exceptions to the ***Fifth Schedule Areas*** notified in ten States.
- The Fifth Schedule of the Indian constitution deals with provisions related to the Administration and control of Scheduled Areas and Scheduled Tribes.
- Gram Sabha's and Panchayats, under PESA Act, have been vested with greater powers, such as approval of plans, programmes and projects for social and economic development, mandatory consultation before acquisition of land in the Schedule Areas for development projects etc
- The PESA Act mainly aims to protect the tribal population from exploitation by making Gram Sabhas and Gram Panchayat centers of self-governance.

Status of compliance of Panchayati Raj Acts with the PESA Act

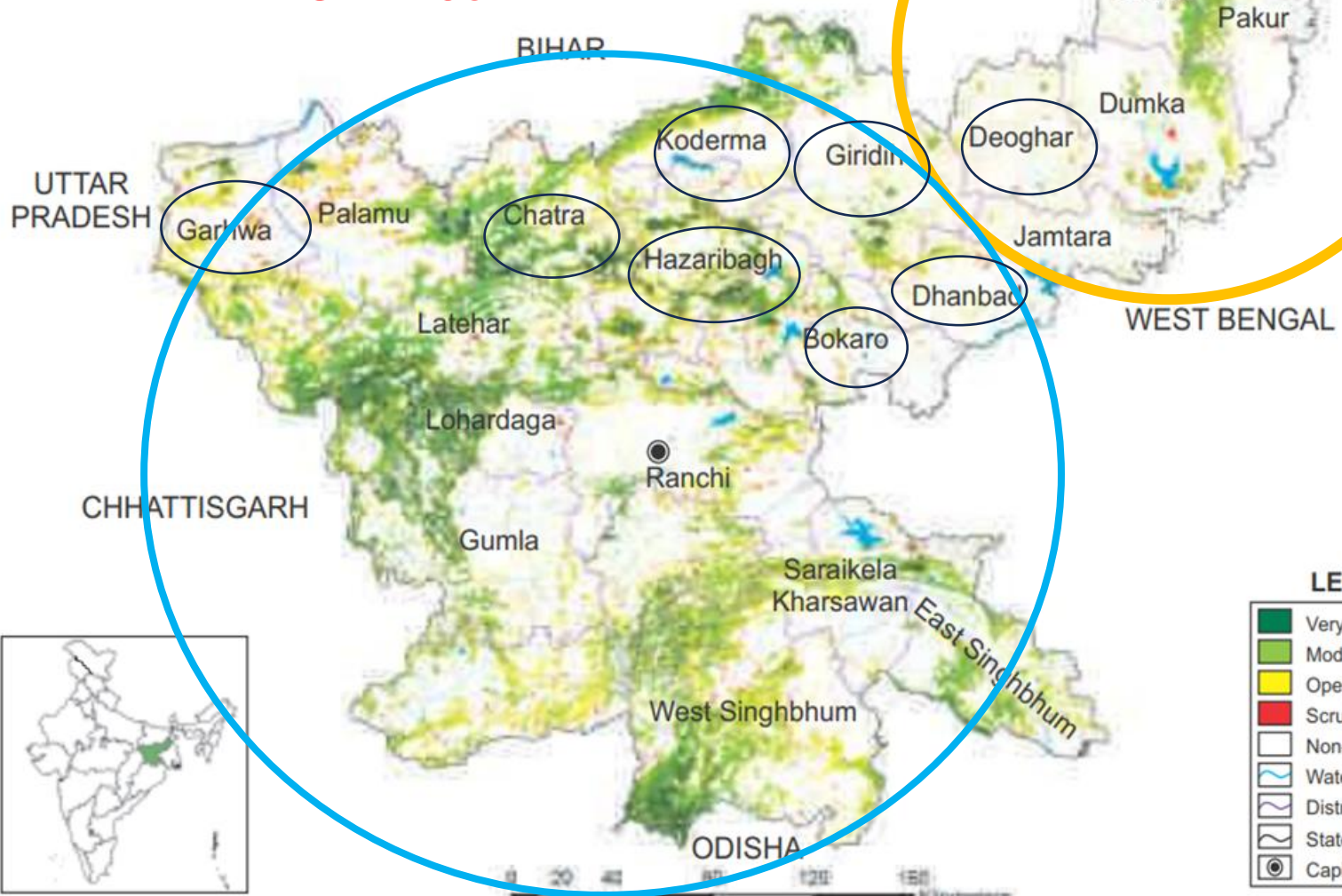
Sl. No.		Status
1	4(d): Customary mode of conflict resolution by the Gram Sabha	Y
2	4(e): Selection of programme beneficiaries by Gram Sabha	Y
3	4(f): Gram Panchayat to obtain Utilisation Certificate from Gram Sabha	Y
4	4(h): Nomination by State Government of persons of ST not represented in intermediate & district PRIs	Y
5	4(i): Consultation with Gram Sabha or PRI before land acquisition & resettlement & rehabilitation	Y
6	4(j): Planning & management of water bodies by Gram Sabha or PRI	Y
7	4(k): Recommendation by Gram Sabha or PRI before grant of prospecting license or mining lease	Y
8	4(l): Recommendation by GS or PRI before exploitation of minor minerals	Y
9	4(m)(i): Power to restrict sale of intoxicant to PRI and Gram Sabha	N
10	4(m)(ii): Ownership of Minor Forest Produce to PRI and Gram Sabha	N
11	4(m)(iii): Power to prevent land alienation to PRI and Gram Sabha	N
12	4(m)(iv): Power to manage village markets to PRI and Gram Sabha	Y
13	4(m)(v): Control money lending to PRI and Gram Sabha	N
14	4(m)(vi): Control of social sector institutions & functionaries to PRI and Gram Sabha	Y

Source: Ministry of Panchayati Raj



Santhal Pargana Tenancy Act

PESA Act



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- PESA – 135 Blocks, 2071 Gram Panchayats (Source: Panchayati Raj department, Jharkhand)



Data & Variables

- Forest Cover Data - *Vegetation Continuous Fields (VCF), (250 metre) (MODIS)*
- Unit of Analysis - Village level (19,014)
- SPTA villages – 6419 villages
- CNTA villages – 12595 villages
- *Span of Data – From 2001 to 2020*
- Santhal (*Dummy*)
- Scheduled (*Dummy*)
- PESA (*Dummy, 1 if post 2010 or 0 otherwise*)
- Date Source - *SHRUG*

Summary Statistics		
variable	Mean	Stnd Dev
Forest Cover	6.59	6.37
Poverty Rate	0.45	0.21
Change in Pop	0.93	0.24
Share_HH_income_culti	0.35	0.33

Data & Variables

- **Poverty Rate** - The poorer households have greater dependence on forest resources (Usman et al., 2016, Vira et al, 2016) and thus have incentive to conserve their local forest. However, high poverty rate can also negatively affect forest cover if high dependence leads to high extraction (Agarwal et al, 2023)
- **Population Change** (greater than 1%) (Dummy) - An increase in population puts greater pressure on forest resources and can lead its degradation (Khuc et al, 2018)
- **Share of Pop with Cultivation as main Source of Income** - If the cultivators use green manure and fodder, they are expected to have incentive to protect and conserve forest resources (Agarwal et al, 2023). However, farmers might also clear forest land for purpose of cultivation hence leading to reduction in forest cover and degradation of forest resources (FAO, 2016).
- Sample in the analysis includes only census town/villages above 10 percentile of forest cover in the year 2001 and having ST population share > 0



Difference in Differences

	<i>Before PESA</i>	<i>After PESA</i>	<i>Difference</i>
Jharkhand			
Scheduled	8.17	9.17	1
Non-Scheduled	6.07	6.89	0.81
	Difference in Differences		0.18
Areas Under SPTA			
Scheduled	8.48	9.41	0.92
Non-Scheduled	7.15	8.11	0.95
	Difference in Differences		-0.02
Areas Under CNTA			
Scheduled	7.96	9.01	1.05
Non-Scheduled	7.19	8.06	0.86
	Difference in Differences		0.18

Empirical Model

- $\text{Forest Cover}_{i,t} = a_b + \delta \text{year}_t + \beta_1 \text{Santhal}_i + \beta_2 \text{Scheduled}_i + \beta_3 \text{post_pesa}_{it} + \beta_4 \text{Santhal} * \text{post_Pesa}_{it} + \beta_5 \text{Scheduled} * \text{post_Pesa}_{it} + \beta_6 \text{Scheduled} * \text{Santhal} * \text{post_Pesa}_{i,t} + \gamma X_{i,t} + \varepsilon_{i,t}$
- **Scheduled*Santhal*post_Pesa** is the interaction between Schedule_santhal and post_Pesa dummy (which is 1 for years after 2010; 0 otherwise).
- β_6 - represents the incremental increase in forest cover in scheduled villages over non-scheduled villages in the SPTA region after the implementation of PESA
- a_b - Block/Sub-district fixed effects
- δyear_t - Year fixed effects
- $X_{i,t}$ - Poverty rate, change in Population, share of HH with cultivation as main source of income
- Standard errors are clustered at the census town/village level

PESA, Property Rigths and Forest Cover	
	Forest Cover
Scheduled X post_PESA	0.134*** (0.024)
scheduled_santhal X post_PESA	0.288 *** (0.039)
Poverty Rate	
Poverty Rate	2.991*** (0.228)
Change in Population	
Change in Population	-1.780*** (0.189)
HH Share _cultivation_income	
HH Share _cultivation_income	0.542*** (0.138)
Mean Y (Santhal) 2001	
Mean Y (Santhal) 2001	4.762
Mean Y (Non-Santhal) 2001	
Mean Y (Non-Santhal) 2001	5.693
Time Span	
Time Span	2002-2020
Year Fixed effects	
Year Fixed effects	Yes
Block/Sub-district fixed effects	
Block/Sub-district fixed effects	Yes
Standard Error cluster	
Standard Error cluster	Census Town/village
Observation	
Observation	353,160
R square	
R square	0.394
p < 0.10, ** p < 0.05, *** p < 0.01.	

Result

- Overall Increase of Forest cover in SPTA to PESA = 8.86%
- Overall increase of Forest Cover in CNTA to PESA = 2.35%



Results of Test for Parallel Trends

	Forest Cover
Scheduled_Santhal X Post_2004	0.040 (-0.8)
Scheduled_Santhal X Post_2005	-0.030 (-0.70)
Scheduled_Santhal X Post_2006	-0.399*** (-9.50)
Scheduled_Santhal X Post_2008	0.027 (-0.72)
Scheduled_Santhal X Post_2009	-0.122** (-3.15)
Year Fixed effects	Yes
Block/Sub-district fixed effects	Yes
Standard Error cluster	Census town/village
Observation	353,160

**Controls include poverty rate, pop change and Share of Pop with Cultivation as main Source of Income*

**Unable to estimate the model due to missing F-statistics for years 2001-2003,2007*

Mechanisms linking improved representation under PESA to Property Rights and forest conservation

➤ Stewardship of the Forest

- ST communities are better incentivized to take care of the forest if they can pursue their economic interest by collecting minor forest produce.
- By pursuing these non-timber resources, ST communities under serve as better stewards of the forest, in comparison to the status-quo communities where timber companies and mining operators have a freer hand to extract forest resources

➤ Opposing Mining Operations

- By empowering forest-dwelling and forest-adjacent local communities, who in turn disrupt large-scale commercial operations (mining operations) due to health issues, decreased vegetation & forced displacement.
- *Jharkhand Villagers Protest A Coal Venture, Refuse to Allow Land Acquisition Surveys in Hazaribagh (Telegraph,2022)*
- *Massive protest against private mines in Jharia (Telegraph, 2024)*



Summary of the findings

- In our study, we find that differences in property rights in the state of Jharkhand, influences the intensity of the impact of PESA on forest cover.
- The local political representation through PESA has a much higher and positive impact on forest cover in the villages under Santhal Pargana Tenancy Act as compared to the villages under Chota Nagpur Tenancy Act.
- Henceforth, our study shows that property right of the people in a region needs to be taken into account to assess the impact of local political representation on the conservation of forest resources.

Thank You