

# CHALLENGES IN SOUTH ASIA WITH A CASE STUDY IN SRI LANKA: DEFORESTATION

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# BACKGROUND INFORMATION



Figure 01. Map of Sri Lanka (Adapted from Sri Lanka, <https://srilankaglocalcountryprofile.wordpress.com/>)

## Economic Indicators:

- Middle income Country
- GDP- US \$ 87.2bn/(GDP per capita US \$ 4,065)
- Major Economic Sectors with GDP share- Agriculture (6.9%), Industry (26.8%), Services (56.8%) (CBSL, 2018)

## Demographic and Social Indicators

- Population- 21.4 mn
- Population growth rate -1.1%
- Population density-342 per km<sup>2</sup>
- National Poverty Line-4.1%

Table 01: Forest Cover in Sri Lanka -2010

Forest Type	Extended-ha	%
Low Land Rain Forests	123,302	1.9
Moist Monsoon Forests	117,885	1.8
Dry Monsoon Forests	1,121,392	17.1
Montane Forests	44,758	0.7
Sub Montane Forests	28,513	0.4
Riverine Dry Forests	2,425	0.0
Mangrove Forest	15,669	0.2
Savannah Forest	68,043	1.0
Open Sparse Forests	429,485	6.5
Total	1,951,472	29.7

(Adapted from Department of Forest Conservation Sri Lanka)

- Very high in all forms of biological diversity
- Sri Lanka together with Western Ghats of India has been declared as one of the 34 biodiversity hot spots in the world.

Existing forest cover (29.7% of total land area) to be increased up to 32% by 2030 (MMDE,2016)

# BENEFITS OF FOREST ECOSYSTEMS

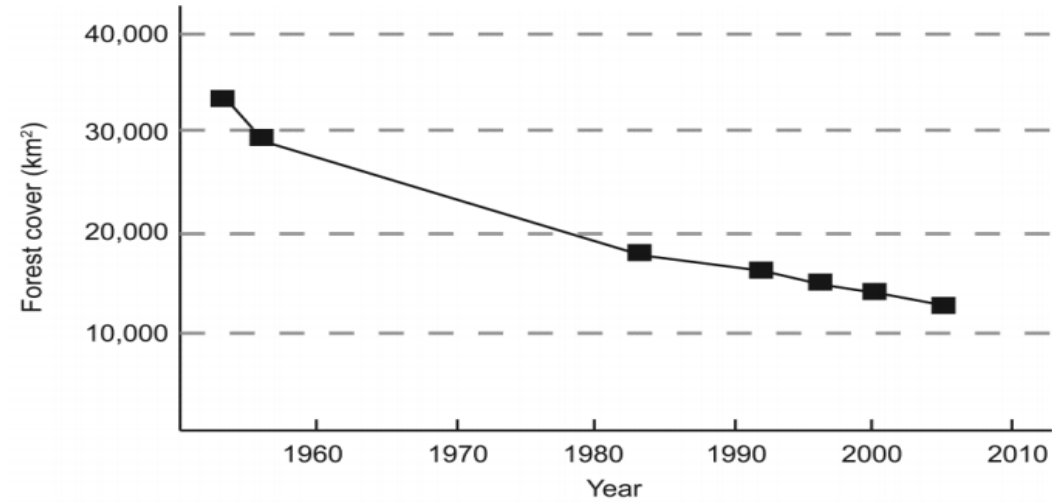
## Ecosystem Services

<p><b>Supporting Services</b> Services necessary for the production of all other ecosystem services</p> <p>Soil formation Nutrient cycling Primary Production</p>	<p><b>Provisioning Services</b> Products obtained from ecosystems</p> <ul style="list-style-type: none"> <li>food</li> <li>fresh water</li> <li>fuel wood</li> <li>fiber</li> <li>biochemicals</li> <li>genetic resources</li> </ul>
	<p><b>Regulating Services</b> Benefits obtained from regulation of ecosystem processes</p> <ul style="list-style-type: none"> <li>climate regulation</li> <li>disease regulation</li> <li>water regulation</li> <li>water purification</li> </ul>
	<p><b>Cultural Services</b> Non-material benefits obtained from ecosystems</p> <ul style="list-style-type: none"> <li>spiritual and religious</li> <li>recreation and ecotourism</li> <li>aesthetic</li> <li>inspirational</li> <li>educational</li> <li>sense of place</li> <li>cultural heritage</li> </ul>

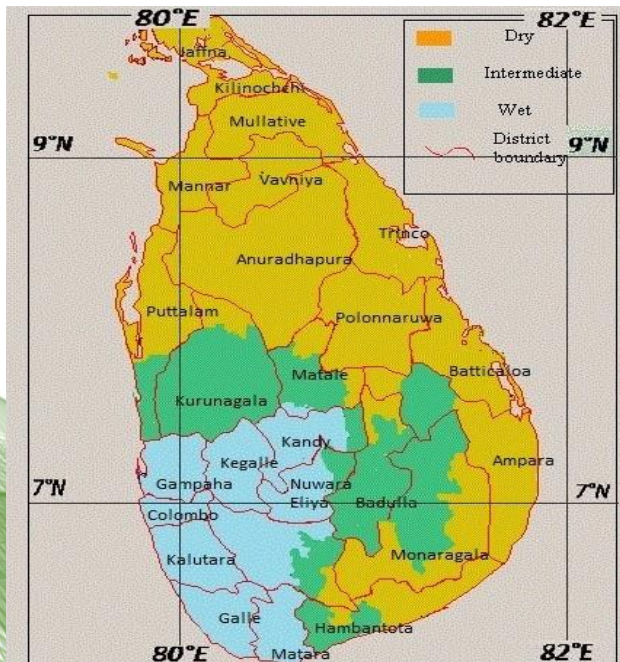
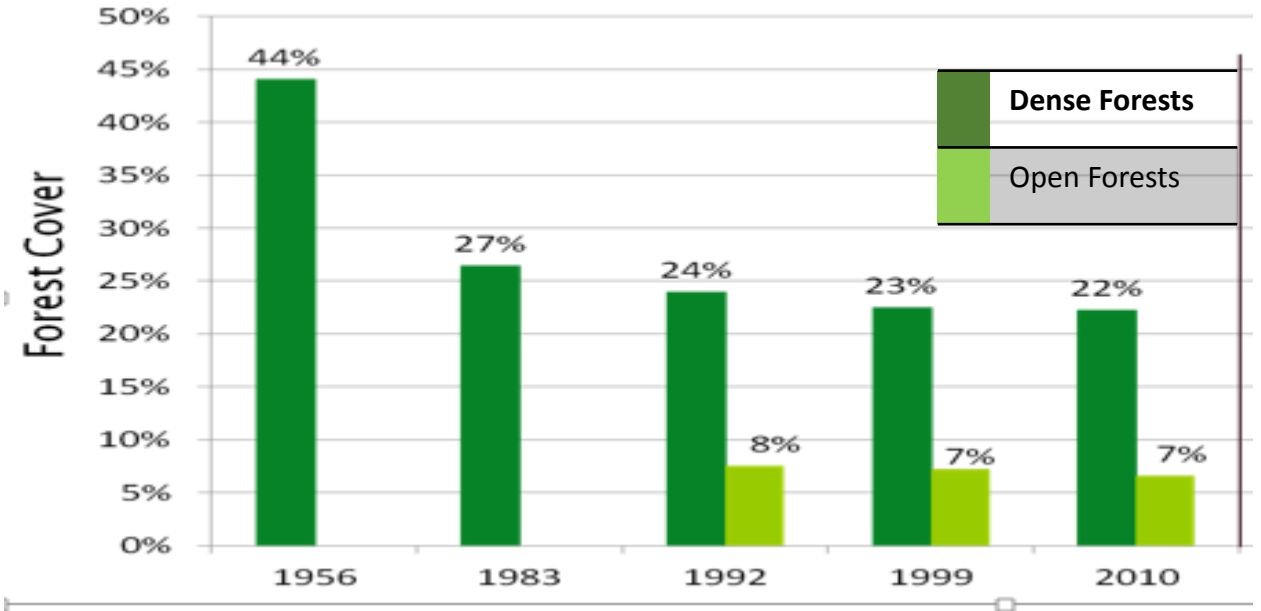
## Constituents of Well-being

<p><b>Security</b></p> <ul style="list-style-type: none"> <li>▪Ability to live in an environmentally clean and safe shelter</li> <li>▪Ability to reduce vulnerability to ecological shocks and stress</li> </ul>	<p><b>Freedom and Choice</b></p>
<p><b>Basic Material for a Good Life</b></p> <ul style="list-style-type: none"> <li>▪Ability to access resources to earn income and gain a livelihood</li> </ul>	
<p><b>Health</b></p> <ul style="list-style-type: none"> <li>▪Ability to be adequately nourished</li> <li>▪Ability to be free from avoidable disease</li> <li>▪Ability to have adequate and clean drinking water</li> <li>▪Ability to have clean air</li> <li>▪Ability to have energy to keep warm and cool</li> </ul>	
<p><b>Good Social Relations</b></p> <ul style="list-style-type: none"> <li>▪Opportunity to express aesthetic and recreational values associated with ecosystems</li> <li>▪Opportunity to express cultural and spiritual values associated with ecosystems</li> <li>▪Opportunity to observe, study and learn about ecosystems</li> </ul>	

# FOREST DECLINE AT A GLANCE



**Figure 1.** The decline of closed-canopy forest cover in Sri Lanka in the half-century since 1950 (adapted from Mattsson *et al.*, 2012).



	<b>% of Total Land of 6.56mn ha</b>
Dry Zone	63.6%
Wet Zone	23.2%
Intermediate Zone	13.2%

(NPD, 2017)

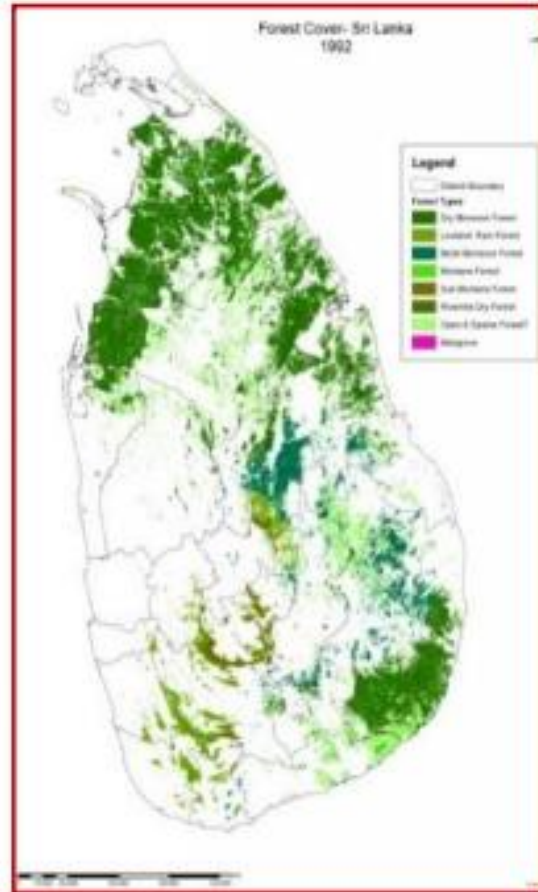
- Btw 1990-2000- 26,800ha of forests were lost (Deforestation rate - 1.14% per annum )
- Btw 2000-2005 – 1.43% per annum
- Dry Zone- Significantly affected than wet zone

- At present Overall rate of deforestation - slowed down
- However, deforestation appears to be more scattered and widespread all over the country instead of being concentrated hugely into few selected areas

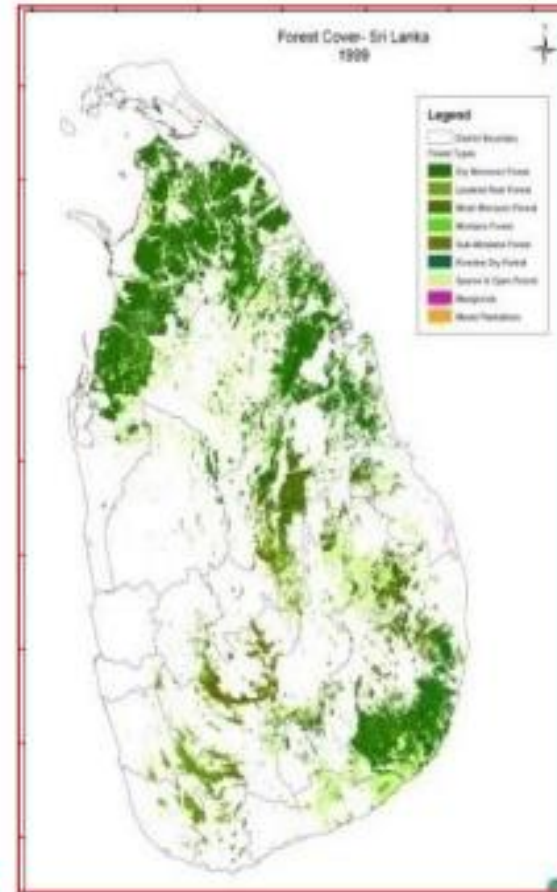
# CHANGES OF THE FOREST COVER



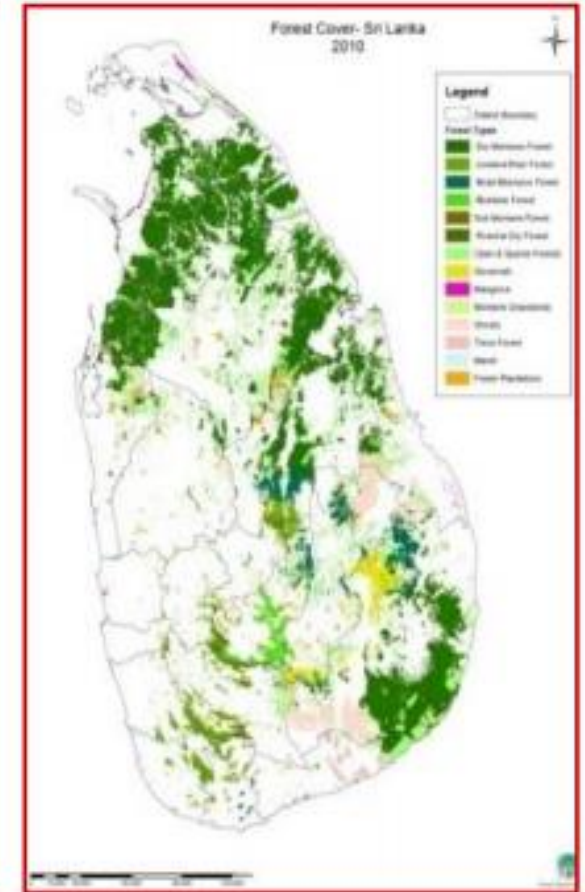
1956 (44.1%)



1992 (35%)

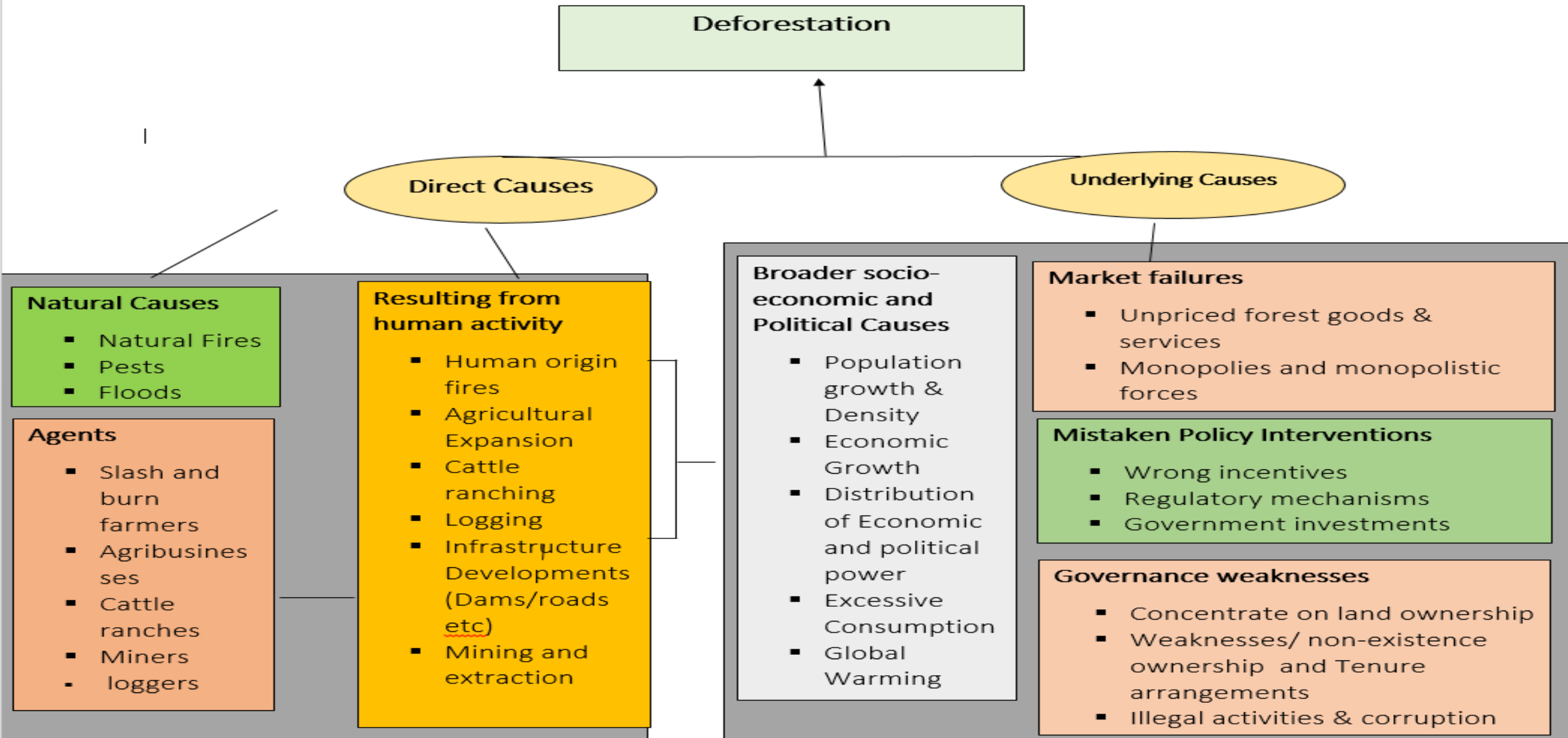


1999 (32%)

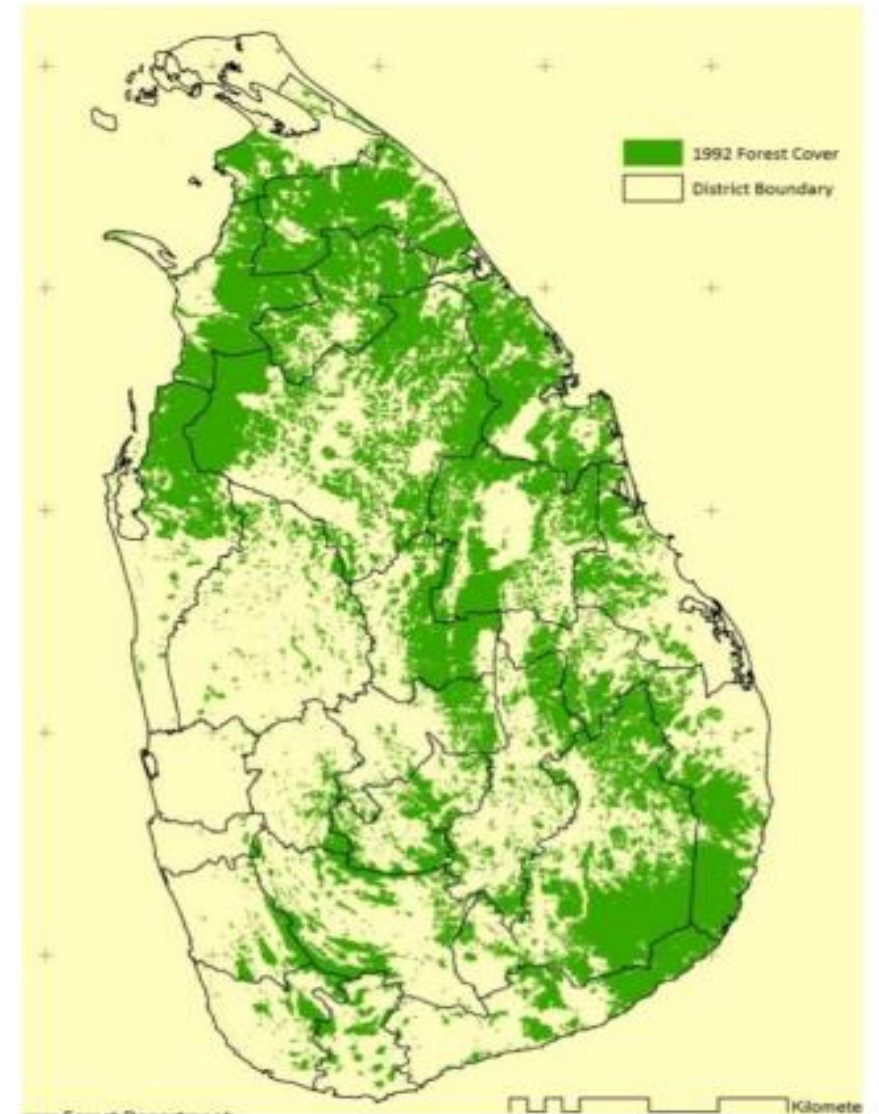
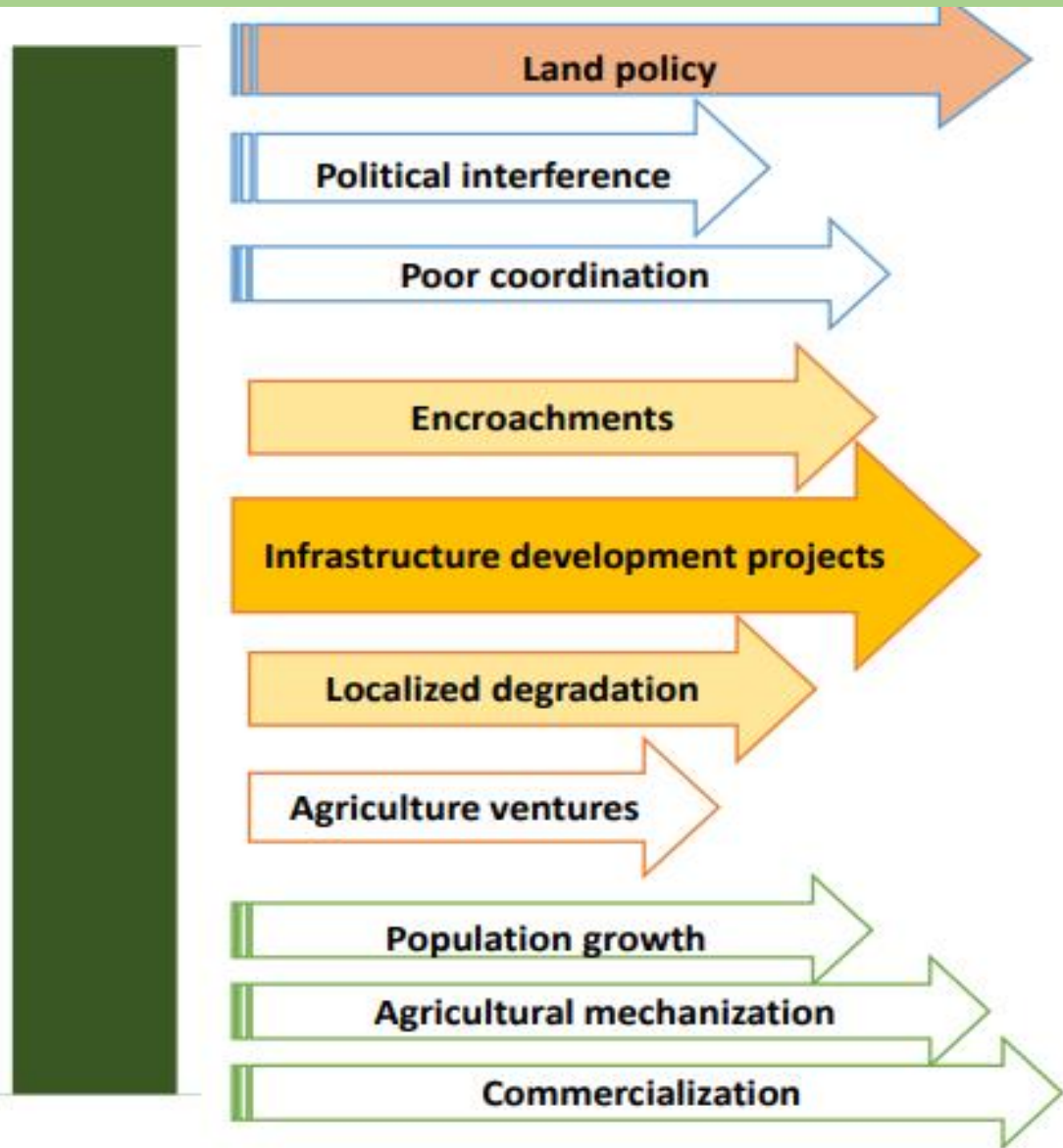


2010 (29%)

# CAUSES/DRIVERS



# MAIN CAUSES/DRIVERS IN SRI LANKA



# DRIVERS/CAUSES

## Issues in Land Policy

– Difficulties in determination of ownership of lands/ Less attention on land use pattern/ (NPD,2017)

### • Large Scale Infrastructure Projects

- loss of habitat for terrestrial wildlife including the disruption of the movement patterns of wide ranging species such as elephants and ungulates
- Significant potential loss of threatened and endemic species, unique habitats and disturbance to migratory paths
- Eg: irrigation projects /Expressways
- Major/ mini hydro power projects



## Shifting Cultivation

- Expansion of shifting cultivation into undisturbed forests
- Intensification of agriculture in shifting cultivation
  - Areas "in which shifting cultivation had become Intense (where the fallow period decreased)"
  - Areas "where a complete transition from shifting to permanent agriculture had occurred".



Encroachments  
-eg:-  
Agriculture,  
settlements,  
Coastal Shrimp  
farming)



# DRIVERS /CAUSES

**Forest Offences :** includes illicit felling, forest clearing, illicit timber transport, gem mining, illicit possession of state timber and un-registered operating timber enterprises.

Year	No.of Offences
2015	2804
2016	3887
2017	3887

(FD Sri Lanka)

**Forest Fires – all most all are human origin**

- **Throwing cigarette butts** when travelling by train or walking through forest
- **Burning of debris by workers** maintaining highways and railway tracks without taking proper precautionary measures
- **Burning dead grass** in order to obtain fresh grass for cattle. These fires often spread to nearby forests
- **Burning of degraded forests** for shifting cultivation
- **Setting fire** to the forest by hunters to drive animals out.

(FAO, FD Sri Lanka)

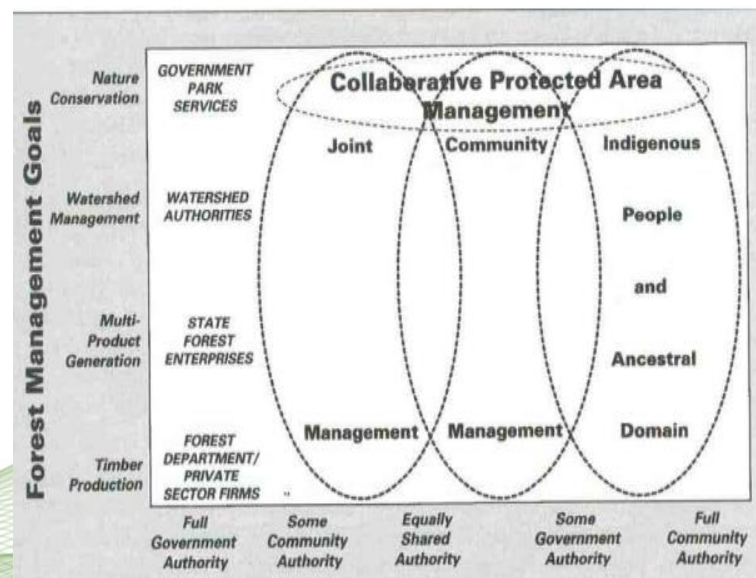
Year	Number of Fires Reported	Area Burned (ha)	Estimated Cost (USD)
1990	114	549	9,788
1991	100	186	15,245
1992	234	259	6,861
1993	58	174	8,204
1994	60	191	18,588
1995	126	372	19,458
1996	136	271	21,465
1997	205	610	44,958
1998	114	204	7,480
1999	47	417	42,227
2017	35	80	
2018	210.7	436	



# CHALLENGES IN FOREST RESTORATION & REDUCE DEFORESTATION/DEGRADATION

## The management/governance challenges

- Inadequate facilities for protected area management
- low capacity of institutions and resources to effectively manage forest and wildlife resources
- fragmented responsibilities and overlapping institutional mandates
- Non-integrated planning that takes the conservation and benefit sharing of natural resources
- Lack of awareness of general public / officers in the area of importance of maintaining biodiversity /endemic species / threatened species etc



Adapted from Poffenberger et al., 2000)

## Specific Challenges for the Forest Restoration

- Very slow natural succession & growth of seedlings in dry and intermediate zone
- Limited number of native species & inadaptable to the severe site conditions (Eg: Nutrient –poor soils, exposure to sunlight, wind and high temperature, competition with weeds, browsing by wildlife)
- Lack of community participation for raise tree seedlings for planting/ fire protection and local knowledge in species selection
- Lack of documented indigenous knowledge and practices
- Poor monitoring records lack in digitalization of records / remote sensing is not utilized
- Constrained maintenance activities – lack of funds/ low maintenance frequency
- Lack of vigilant maintenance in controlling invasive species such as *Lantana camara*, *Chromolaena odorata* and *Clidemia hirta*

**THANK YOU FOR YOUR ATTENTION**



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