

Assesure					
S. No.	Impact Parameters	Before 2006	2013	2017	Remarks
A Environment/ Ecological Impact					
1	Topography	Wet & Dry Zones	Wet & Dry zones	Wet & Dry zones	Rate of %age increases 0.42°C per year and varies in Rainfall, refer detail study
a	Mean Temperature and Rainfall	20-30°C/600-3500mm	35°C/500-3000mm	25-38°C/572-2872mm	Refer detail study report "Weathering parameters influence strongly (67%) compared to other factors like soil and nutrient management (33%) during the plantation season.
b	Humidity and temperature	Generally hot and dry	Generally cool and humid	Cool and Humid, Temperature Max. 38°C	
2	Physio-Chemical Properties of Soil	Very less	Less	Improving	Organic Content increased 0.31 to 2.56% in the all sections due to litter fall & its Decompositions. Refer Detail study report
a	Soil type & nature	Toward Acidic & Alkaline	Less acidic & Alkaline	Neutral and Alkaline (-7.5pH)	See detail study report. Red soil contribute 58% in all section and others.
b	Main Nutrients of soil -NPK	Acidic	143.75 to 487.5 Kg/ha	177.15 to 526.05 Kg/ha	Refer detail study Report
c	Micro- Nutrients in soil	Delicied	Improving	0.58 to 55.10ppm	Refer detail study Report
3	Water Quality and Recharge of Ground water level	Varies from 150-250 Ht(Gi Meter)	Varies from 180-200 Ht(Gi Meter)	Varies from 150-260 Ht (79 meter)	Refer detail study Report
4	Depth of Water Table based on Hydrology	Declined	Sustained despite a number of new wells dug	Sustained despite in addition of a number of new wells dug	Refer detail study Report
5	Carbon Sequestration	Nil and no Carbon sequestration from Pvt Forest/ Agro-Forestry	Increased Carbon sequestration from Pvt Forest/ Agro-Forestry	Felling start and reducing Carbon sequestration from Pvt Forest/ Agro-Forestry	Refer detail study Report
6	Preservation of Conservation Area	Nil	5	12	increased
7	Biological diversity	Less	Significantly improved due to protection of adjoining shoals and Natural forest. SARA plantations act as Buffer zones.	Maintaing and Improving	See detail study Report.
8	Erosion intensity: Soil and water conservation	There was no check dam & too much Erosion	Soil erosion brought by 80% and moisture conserved by 70%, reducing some of extent & also Developed check dam	Improved turning toward Fertile lands from Barren/ Degraded land. Developed check dam more.	Contour ripping and making contour bands. Thick mat of leaf litter on the floor of plantation. Creation, plantation cover the open lands has increased. Conservation. Refer Detail study Report.
9	Root Modulation & its analysis	Nil	35-70cm	35-70cm	No scientific data or evidence is provided to prove that eucalyptus roots will deplete the water table. Refer detail study report
10	Nitrogen fixation through Root Nodulation	Nil	Acacia Hybrid, Casuarina & Sababul	Acacia Hybrid, Casuarina & Sababul	Known to produce the nodules for N ₂ fixation. Root nodulation was examined among different species and it was observed that species have vertical Nodulation formations.
11	Soil-micro Flora and fauna-Leaf litter	Not available	Available in plenty.	>20-40 t/ha	Some organisms (like bacteria, fungi, actinomycetes, algae, blue-green algae, protozoans, nematodes, earthworms, molluscs, arthropods etc.) help and play in maintenance of soil fertility & nutrient recycling through nitrogen fixation & responsible for return of essential element back to soil by decomposition of dead organic matter (Leaf litter).
12	Shelterbelt	Nil in barren land	WIND break with Espacement 2.3m	Wind break with Espacement 1.5,3m	Served as wind breaks and shelterbelt reducing the velocity of wind to a great extent, abridged the gap that existed between patches of natural forests
13	Control of Forest Fire	More due to Deliberately action of Grazers	Negligible	Controlled through fire lines and narrow paths	Free access to firewood leaf litter the fire incidence is now almost nil
14	Wild life	Score	According to Mr. Harrison a wildlife expert UK 19 species of mammals, 115 species of birds and many reasessed	Maintaing	Kuluvall is best Exampe of Biodiversity, Conservation and Wild life protected Area.
15	Eupatorium menace	Ubiquitous	Controlled under plantations	Controlled under Plantations	Was responsible mainly for the incidence and spread of forest fire. This had also affected natural regeneration of forest species
16	Protection and Conservation of Natural forest	Unproductive barren land of farmers	FME has saved 30 ha of natural forest for every 1 ha of plantation raised	has saved 30 ha of natural forest for every 1 ha of plantation raised	Nearly 35,000 ha natural forest would have been destroyed
a	Original vegetation	Proven hacking and lopping	Plantations have now protected old growth and further committed their growth.	Plantations have now protected old growth and further committed their growth.	Positive impact on Original vegetation.
b	Natural Regeneration	No regeneration	Local forest species like <i>Allothus malabarica</i> , <i>Terna ciliata</i> , <i>Acrocarpus</i> , <i>Terminalia chebula</i> , <i>Bamboo</i> and in <i>Acacia</i> are naturally regenerating in wet zone. <i>Tectona grandis</i> and <i>Santal</i> (<i>Santalum album</i>) in dry zone	Local forest species like <i>Allothus malabarica</i> , <i>Terna ciliata</i> , <i>Acrocarpus</i> , <i>Terminalia chebula</i> , <i>Bamboo</i> and in <i>Acacia</i> are naturally regenerating in wet zone. <i>Tectona grandis</i> and <i>Santal</i> (<i>Santalum album</i>) in dry zone	Improved to some extent. Sara developed their plantations with considering wet zone and dry Zone Pulp wood species
c	Natural forest density and cover	About 50%	About 70 %	About 80%	Reduce some extent
17	Prevention of Encroachment	Farmers Scared	Encroachment Controlled under SARA plantations	No encroachment	Helps to farmer on encroachment issue
18	Landscape and land restoration in SARA	Nil	Improved	Improved	Positive Impact
19	Browsing and Grazing	Nil	Fodder Grasses <i>Stylosanthes scabra</i> and <i>S. hamata</i> are available for farmers and their livestock	Fodder Grasses (<i>Stylosanthes scabra</i> & <i>S. hamata</i>) are available for farmers and their livestock	Seed distributed to farmers. In dry area fair tehir livestock in free of csset.
20	Growing stock - Survival and productivity	Nil	Survival 47.24%; Avg. yield 6.58 MT per acre from all section of plantation area	Survival 68%; Avg. Yield 13.32 MT per acre from all section of plantation area.	Negative effect
B. Socio-Economic Impact					
S. No.	Impact Parameters	Before 2006	2013	2017	Remarks
1	Encroachment Prevented	Rampant	>27,016 Acres (worth Rs 6.44 Billion) prevented from encroachment due to Plantation	>28,392 Acres (worth Rs 6.77 billion) prevented from encroachment due to Plantation	Approx. Rate of Land Rs. 2,38,100 lacs per Acre
2	Generation of Employment	Negligible	-750 person days are created for Oil ha plantation. -21800 person days are created to grow 31 lacs seedlings in nursery.	15,000 t/year of fuel wood collected from SARA plantations thus Lopping and felling of natural trees prevented. 100 of tonnes of leaf litter are now available from SARA plantations	Positive Impact Positive Impact
3	Firewood availability	Collected from natural forest	25,000 t/year of fuel wood collected from SARA plantations thus Lopping and felling of natural trees prevented.	28,000 t/year of fuel wood collected from SARA plantations thus Lopping and felling of natural trees prevented.	Positive Impact
4	Leaf litter for areca gardens and paddy lands	Leaf manure was collected from natural forest	100 of tonnes of leaf litter are now available from SARA plantations.	101 of tonnes of leaf litter are now available from SARA plantations.	Positive Impact
5	Literacy Rate	69%	Improved, 71.69%	increased, 76.93%	Support elements SARA Management
6	Life style of people	-	There is drastic change with more self-respect and improvement in education & economic level.	There is drastic change with more self-respect and improvement in education & economic level.	Supportive element as SARA Management
7	Saving/Income from SARA Managed Plantations to Farmers	Nil	Yield productivity per Metric Tonne per Acre to farmers approx. Rs. 5263	Yield productivity per Metric Tonne per Acre to farmers approx. Rs. 5126.	Refer Even Increasing Contract agreement rate. Reducing due to Plantation activity stopped due to ban on Eucalyptus; the potential species suited to any type of conditions and soils and less productivity yield in Some of Section of Plantation Area.
8	Economic benefits of in direct effect	Not much	Value addition in term of in direct benefit is high	Value addition in term of in direct benefit is high	Positive Impact
9	Crop Grown in Other Holding Land of farmers-Net Monetary returns as Saving	Not Much	Rs. 176215 per Acre	Rs. 303200 per Acre	Cultivated Agriculture farm land
10	Cost Benefit Analysis in Plantation	Nil	Rs. 5263	Rs. 13566	On barren land, No source of water. Rainfed Area
11	Cost Benefit Analysis in Other Crops	Not much	2.57	3.4	On agriculture Land source of water availability
12	Economic benefits from other alternative resources	Not much	Not Much	Improved with fresh+ Coppices Bond agreement plantations	On agriculture Land source of water availability shall be continued.