

Karnataka Evaluation Authority

Evaluation study of Forestry
Program - Unit-2-2009
From 2009-2013

Report - 13th FINANCE

Submitted to

The Chief Conservator of Forest Evaluation
Bangalore

2013



EXECUTIVE BRIEF

The following is the brief account of the evaluation report pertaining to the unit-II comprising of Canara, Madakeri and Mangalore Circles. Broadly two major types of activities have been implemented under 13th finance fund scheme.

- i. Afforestation activities to increase forest coverage and
- ii. Site specific activities to conserve forest and improve habitats

1. CANARA CIRCLE

Canara circle is one of the most forested circles in the state of Karnataka; this circle is included under five territorial forest divisions viz. Haliyal, Yellapur, Karwar, Honavar and Sirsi. Apart from this, the circle also has one tiger reserve (Anshi) which is part of the Dandeli Wildlife division.

1.1. Sirsi division:

In the division activities such as maintenance of plantation, raising of plantations and raising of fuel wood plantations were under taken up during the period. In all, 231 Ha was covered for the purpose. The average survival rate of the plantations in the division was 77% with overall rating of the plantations as good. Species like *Acacia auriculiformis*, *Vateria indica*, *Gmelina arborea*, *Tectona grandis*, and *Terminalia tomentosa* were used for planting. Use of *Vateria indica* for fuelwood plantation at Manmane area of Siddapur range is not appropriate.

1.2. Yellapur division:

Activities on maintenance of plantation, advance work in gaps, raising of plantations were the three major activities undertaken in an area of 220.70 Ha, under the division. Activities were evaluated by drawing 42 sample plots as per the plan. Average survival rate at the plantations was 77%. It is prudent to mention that considerable efforts were made to raise plantations of many native species such as *Tectona grandis*, *Terminalia paniculata*, *Adina cardifolia*, *Lannea coromandalica*, *Terminalia bellarica*, *Pongamia pinnata*, *Anogeissus latifolia*, *Diospyros sp.*, *Emblica officinalis*, *Bamboo spp.*, *Syzygium cumini*, *Terminalia paniculata*, *Gmelina arborea*, *T. alata*, *Lagerstromia microcarpa*, *Myristica dactyloides*, *Xylia xylocarpa*, *Garcinia indica*, *Cinnamomum sp.*, *Madhuca latifolia*, *Artocarpus hirsutus*, *Dalbergia latifolia* etc. The overall performance of the plantations was very good.

1.3. Haliyal division:

Under the 13th Finance scheme activities such as maintenance of 1-3 year old plantations and advance work in encroachment area were undertaken in an area of 224.5 Ha; and the activities were evaluated through 54 sample plots. The spacing followed for different plantations varied. Plantation activities were updated in the plantation journal and have been verified by the competent authority of the department. It is unwise to follow wider spacing (4 m x 4m) for the species like *Acacia auriculiformis*. The average survival rate of the plantations was 66%. The growth performance of the plantations in the division was good except Hulakkatti (2009-10) and Kesoralli (2010-11) in Haliyal range where the survival and growth was poor.

1.4. Karwar division:

It is one of the two forest divisions in the circle having coastal area under its jurisdiction. Important activities which were carried under 13th Finance scheme included maintenance of 1-3 year old plantations, advance work in encroachment evicted areas, raising of medicinal and aromatic plants, advance work in gap areas, advance work for coastal casuarina plantations, advance work for fuel wood plantations, maintenance of mangrove areas etc. All the activities were undertaken in reserve forest areas only. In all 387 Ha area was worked under the scheme against the gross area of 435 Ha. Evaluation team assessed the work by taking 79 sample plots in the division. The espacement provided for the plantation activity varied with the type of plantation. The espacement provided in encroachment evicted area for *Acacia* was 5m x 5m and 7m x 7m. The average survival rate of the plantation in the division was 76% with overall performance ranging from average to very good.

1.5. Honnavar division:

Important activities which were undertaken in the division under 13th finance scheme were maintenance of plantations, raising of plantations, advance work in encroachment eviction area etc. These activities were carried out in 75.75 Ha area comprising reserve forests, minor forests and delta areas. In all 16 samples were taken for evaluation purpose. It is prudent to mention that the evaluation team could not trace the proper information on three sites (Nagur 2008-09, 2010-11 and Nushikote 2010-11). Activities pertaining to these three sites were not updated in the plantation journal. Average survival rate of the plantations in the division is 77%. The selection of the species for the plantations was found to be appropriate and overall growth performance of the plantations average to good.

2. MANGALORE CIRCLE

The circle consists of Kundapura, Kudaremkh Wildlife and Mangalore divisions. The kudaremkh WL is a Biosphere area with good density of forest.

2.1. Kundapura division:

Under the 13th finance scheme the activities such as advance works followed by plantation and maintenance of plantation activities have implemented in the reserve Forest area. The evaluation taken up in 12 work locations covering an extent of 155 Ha. In the Division, the average survival rate is 91% against the weighted average of 90. The average survival rate is higher than the weighted average of the division and 87% circle average. The five plantations out of 18 are outstanding which accounted above 97% survival. 94% of the plantation is in very good condition (17 out of 18 locations are in very good condition) with respect to higher % survival and plants growth performance. It is also observed that most of the plantation works undertaken is in the existing forest or in existing plantation. Hence, the Natural Generation in 16% of the plantation are very good, 66% are in good condition and the remaining 18% are average.

2.2. Mangalore and Kudremukh Wildlife division:

In both the divisions, the evaluation conducted in 24 work locations covering an area of 216 Ha. The average survival rate is 84% against the weighted average of 84% in the division. The average survival rate is equal to the weighted average of the division and 87% circle average. The 65% of the plantation is in very good condition (11 out of 17 locations are in very good condition) with respect to higher % survival and plants growth performance, 24% are good and 11% are average. Good natural generation found in 41% of the plantation and the remaining 59% are average.

In the circle, the evaluation carried out including mainly building repair & maintenance in four locations, consolidation of boundary line works in a location and in two locations soil and moisture conservation works. All the works completed as per the plan and found effective to achieve the objective of the scheme.

3. MADAKERI CIRCLE

The afforestation activities such as raising of plantations, Advance works followed by plantation and maintenance work evaluated in nine locations covering an extent area of 295 Ha from Madakeri and Virajpet divisions. The average survival rate is 67% in the circle with comparison to weighted average of 64%. The average survival rate of Madakeri division is 67% and Virajpet division is 68% both are equal. The performances of five plantations out of 9 are average which is accounted below 60% survival. In all 9 locations the Natural regeneration is found good where the growth of native species is more than 50%.

The evaluation carried out including infrastructure activities like building construction/ repair & maintenance, D-line clearness, consolidation of boundary line works, soil and moisture conservation works, tank desilting and establishment of forest Protection camps. All the works completed as per the plan and found effective to achieve the objective of the Scheme.

4. SUMMARY OF EVALUATION

The performance of plantation activities is given in the table below.

a) Summary of Plantation (afforestation) activities evaluated:

Table 1: Weighted average survival in the plantation circle wise

Sl. No.	Circle	Weighted Average Survival (%)	Circle Average (%)	Division Average (%)
1	Canara			
2	Madakeri			
3	Mangalore			

b) Grading of plantations by performance.

Table 2: Survival of Seedlings year wise

Sl. No.	District	Year wise Survival rate			Grading			Average
		Year	No. of the Plantation	Area (Ha)	Survival %	Very Good	Good	
1	Canara	2009-10	3	26	67	1	1	1
		2010-11	28	526.25	70	8	14	5
		2011-12	13	264.75	78	6	6	1
		2012-13	12	317.25	81	6	6	
2	Madiker	2009-10	-	-	-	-	-	-
		2010-11	5	120	70	1	2	2
		2011-12	3	140	58	-	-	3
		2012-13	1	25	75	-	1	
3	Mangalore	2009-10	-	-	-	-	-	-
		2010-11	8	79.09	88	7	1	
		2011-12	15	187	88	12	3	
		2012-13	12	160	96	8	3	1
Total			100	1345.34		49	57	12

c) Summary of other works evaluated:

Table 3:

Sl. No.	District	Division	No. of works	Good	Satisfactory	Not Satisfactory
1	Canara	Haliyal	37	37		
		Honnagara	38	38		
		Karwar	16	16		
		Sirsi	23	23		
		Yellapur	4	4		
2	Madikeri	BRT	1	1		
		Cauvery WL	2	2		
3	Mangalore	Hunsur	1	1		
		Mysore	3	3		
		Mysore WL	1	1		
Total			126	126		

State average: No of works evaluated - 126, 100% of the plantations are Good.

Chapter – V

SUMMARY OF FINDINGS

General observation:

1. Most of all the afforestation works either taken up in existing forest or in existing old plantation to assist for the regeneration of natural & native species. In some instances due to poor sunlight and more density of trees, the young plants growth performance is not at expected level.
2. In most of the cases the Plantation Journals were maintained but not fully updated.
3. More than 90% of the plantations did not adhere to the model specific guideline especially espacement, density of plants.

1. Afforestation Activities:

The plantations journals were updated and were duly inspected by the competent authority of forest department. The espacement followed for advance work in gap areas varied and it was found that in some of the areas for timber yielding species the spacing of 10 m X 10 m was not appropriate (Mundagod range). Also, in some locations mixing of species like timber yielding and fruit yielding were made but the spacing was not appropriate.

More number of species would have been considered for raising medicinal and aromatic plantations instead of only one species *Saraca asoka* (Karwar).

- The advance work has yielded good results in conservation of soil moisture, priming of pit for plantation. This has resulted in good growth and better survival rate compared to the non-treated area.
- The success rate of plantation in different models differs from each other. The plantation works carried out after advance work is found to be performing well with more than 70% survival and good natural regeneration.
- The plantation operations have not been carried out as per the plan due to various reasons like non availability of quantity of saplings and labor management.
- The documents are available for plantations such as APO, Estimation, plantation journal, FNB including supporting documents. But in few cases the plantation journal even though maintained has partial information. The lacuna found in the updating of information was due to non-verification by the higher authorities to follow up and take appropriate measures.
- In most of the plantation biotic pressure is high, browsing of plants by wild animals and stray animals at the early stage is more. In addition, the elephants destroying & removing newly planted sapling at the early stage at Kollegal, Cauvery wild life, Kanakapura are part of Bangalore circle.

- In most of the plantation biotic pressure is high, browsing of plants by wild animals and stray animals at the early stage is more. In addition, the elephants destroying & removing newly planted sapling at the early stage at Kollegal, Cauvery wild life, Kanakapura and part of Bangalore circle.

Suggestions:

1. The advance work to be undertaken at least to one season before plantations.
2. A package of systematic works including boundary demarcation, suitable pitting/Trenching method, CPT, Percolation trenches to be undertaken as a package.
3. While planning for the advance work, the soil test and identification of suitable species would perform well in the area. The species such as Honge, Bevu, and Nelli etc. is strongly recommended to use heighted seedlings during the plantation.
4. The plantation activities are to be discouraged in the area/divisions where ever growth and survival rate accounted less than 50% due to low rainfall in the area, poor soil structure, more biotic pressures-especially the area wherever more wild animals are living.
5. Plantation activities planned in the evicted areas, a special attention is to be given to mobilize community participation to protect & develop the forest on joint forest management concept.
6. Compartmental bunding has been recommended in the gentle to moderate slope areas as a part of maintenance to accelerate the survival rate.
7. The sporadic construction of gully checks may not yield good results in terms soil and moisture conservation, instead Nala bunds and percolation tanks with higher impounding area to be encouraged.

Recommendation - at circle level

Conclusion and acknowledgement:

Annexures

Itinerary of the study

Details of samples selected