

Offsetting Carbon Footprints in Southern Rajasthan

Quarter 3 Report
July - September 2020



Executive Summary

MakeMyTrip Foundation is supporting Seva Mandir to undertake afforestation activities and offset carbon footprints. During this year, 40,000 saplings will be planted in the rural and tribal areas in Udaipur and Rajsamand districts of southern Rajasthan.



Context

Southern Rajasthan is semi-arid region with a hilly terrain, having an erratic weather pattern making the region vulnerable to climatic variation. The region receives average rainfall of 640 mm annually during the monsoons. Due to erratic monsoon and undulating terrain, water harvesting is poor and has high soil erosion.

Common land such as pastures, forest and revenue land constitutes 72% of the total land area in our work area. Nearly 80-100% of rural poor depend on common lands for food, fuel and fodder. However due to anthropogenic pressure, encroachments have been happening on common lands of forests and village pastures. The private wastelands are also degraded, although in better conditions than commons, as families do not have expertise and resources to protect, restore and manage them.

The degradation of lands result in the loss of soil and water regime in the downstream areas lowering the net groundwater availability to critical category. A lack of trees and supporting fauna affects the local ecology. Degradation has led to low availability of fodder, fuel, wood and other forest produces affecting the livestock productivity and income and food security. And importantly, the interest of people to maintain them is lowering with time.

The work of afforestation therefore becomes crucial not only from the point of view of ecological restoration but also from providing sustainable livelihoods for the community and making them interested towards conservation of those lands.

Progress so far

Protection and Plantation at the site

Nine common pastureland sites were selected for plantation, with the consultation of local community of particular village which also involves block/zone team of Seva Mandir.

The respective Gram Panchayat was also consulted for their active involvement in planning and implementation of plantation. Gram Panchayat also provided No Objection Certificate (NOC) to the Gram Vikas Samooh for protection and regeneration of common pastureland of the village. Regular meetings with community and Gram Vikas Samooh were also conducted for planning and implementation of plantation and protection activities at the site.

Apart from this, area demarcation of each selected site was done involving village community. The loose-stone protection wall is constructed/repared along with putting over thorny bushes available around for strengthening the protection of all the selected sites. Total 181 ha area of common pastureland has been covered by protection and plantation activities. Apart from these common pasturelands, the individual pastureland/farmland of 148 farmers were also selected for plantation under the project. The native species which have multi-purpose uses were selected for plantation. The required number of saplings of selected species was procured from forest department nurseries. A proper landscape plan was followed at each site for ecological plantation. Thus, a total of 37,290 saplings were planted till the reporting period. The re-plantation of 3,400 saplings at common pastureland was also completed during the period. Besides plantation, there are some associated vegetative measures which were also undertaken like direct seeding, planting branch/stump cuttings, etc. to increase vegetative cover at the sites.

Apart from these activities, new sites were also selected covering an area of 21 ha for next year plantation. The site protection work is under progress for the same.



The site-wise detail is given in the below table.

S. No.	Name of Block	Name of sites	Area (in ha)	Plantation Achievement	Activities completed / Remarks, if any
1	Badgaon	Bhewadiya	29	3000	<ul style="list-style-type: none"> - Gap filling of 9,405 feet loose-stone fencing wall completed for the protection of the site. - Plantation and soil-water conservation work completed. - About 180 jatropa cuttings planted as bio-fencing vegetation at the site. - Weeding – hoeing completed of planted saplings.
2	Badgaon	Kachba	7	5000	<ul style="list-style-type: none"> - Gap filling and construction of 7374 feet loose-stone fencing wall completed for the protection of the site. - Plantation and soil-water conservation works completed. - Direct seeding done and 2000 cuttings jatropa cuttings planted as bio-fencing vegetation at the site.
3	Badgaon	Naron ka kheda	62	3000	<ul style="list-style-type: none"> - Gap filling of 867 feet loose-stone fencing wall completed for the protection of the site. - Plantation and soil-water conservation works completed. - About 400 jatropa cuttings planted as bio-fencing vegetation at the site. - Weeding – hoeing completed of planted saplings.
4	Girwa	Borikuwa	12	3500	<ul style="list-style-type: none"> - Gap filling and construction of 3011 feet loose-stone fencing wall completed for the protection of the site. - Plantation and soil-water conservation works completed. - Direct seeding done and 225 jatropa cuttings planted as bio-fencing vegetation at the site.
5	Kherwara	Lambapan-wa	10	6500	<ul style="list-style-type: none"> - Gap filling and construction of 3000 feet loose-stone fencing wall completed for the protection of the site. - Plantation and soil-water conservation works completed. - Direct seeding and Salar/Jatropa stump/branch cutting plantation (2250) done at the site. - Weeding – hoeing completed of planted saplings.
6	Kherwara	Nichla Talab	7	4000	<ul style="list-style-type: none"> - Gap filling and construction of 3000 feet loose-stone fencing wall completed for the protection of the site. - Plantation and weeding–hoeing completed. - Direct seeding done and 500 jatropa cuttings planted as bio-fencing vegetation at the site. - Weeding – hoeing completed of planted saplings.
7	Kumbhal-grah	Aamliyar	30	4000	<ul style="list-style-type: none"> - Gap filling and construction of loose-stone fencing wall completed for the protection of the site. - Plantation and weeding–hoeing completed. - Associated vegetative measures like direct seeding done at the site.
8	Jhadol	Ranjitpura	19	5000	<ul style="list-style-type: none"> - Gap filling and construction of 500 feet loose-stone fencing wall completed for the protection of the site. - Plantation and weeding–hoeing completed. - Direct seeding done and 300 jatropa cuttings planted as bio-fencing vegetation at the site.
		Vanpura	5	1000	<ul style="list-style-type: none"> - Gap filling and construction of 3100 feet loose-stone fencing wall completed for the protection of the site . - Plantation and weeding – hoeing completed. - Direct seeding done and 550 jatropa cuttings planted as bio-fencing vegetation at the site.
		Individual Land	-	2290	<ul style="list-style-type: none"> - Plantation done at 148 individual farmer's pastureland/farmland. - Soil – moisture conservation measures completed.
	Total		181	37,290	



Plantation activity



Plantation activity at a glance



Community meeting



Growth of planted sapling



Loose-stone protection wall construction



Loose-stone protection of new site



Plantation at Individual farmer's land



Plantation at Individual farmer's land



Soil-water conservation measures



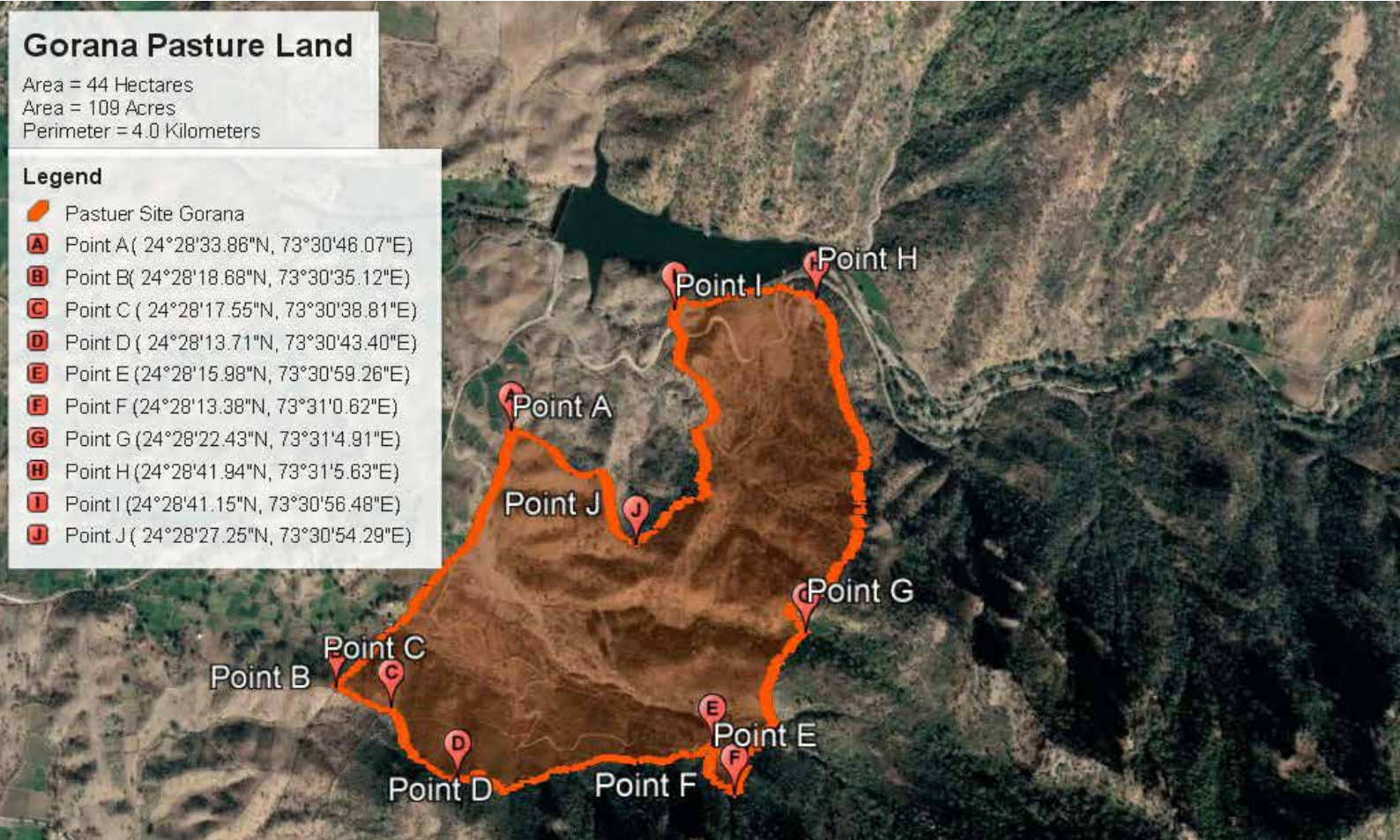
Transportation of Saplings from forest department nurseries



Women participation



Youth participation



GPS Map of new site- Gorana (21 ha)

Weeding – hoeing and soil-moisture conservation measures

The post plantation management interventions like weeding–hoeing, etc. have been implemented at plantation sites. On-site orientation of village community has been conducted for quality activity implementation for better vegetative growth of planted saplings. This is an important activity to retain soil-moisture regime and to remove weeds or unwanted plants, grasses, herbs, etc. in-around the pits of planted saplings which supports maintaining survival rate of the plantation and to increase regeneration of existing vegetation. Weeding-hoeing of about 12,530 saplings were completed till the reporting period. The associated soil-moisture conservation initiatives like Thanwla, etc. were also done at the plantation sites for better growth of planted saplings.



Weeding-hoeing activity

Capacity Building Events

To enhance the capacity and orientation of the community and the field teams, different programmes i.e. trainings, meetings, etc. were conducted at the field level, following social distancing norms. The details of capacity building sessions are:

S. No.	Date	Place	Details of Programme	No. of participants
1.	08/07/2020	Nichla Talab - Kherwara Block	• On-site training cum demo with village community for plantation techniques and associated soil-moisture conservation initiatives.	23
2.	20/07/2020	Borikuwa – Girwa block		11
3.	21/07/2020	Ranjitpura and Vanpura sites – Jhadol block	• Orientation of Gram Vikas Samooh for protection and management of plantation site of common pastureland.	34
4.	22/07/2020	Aamliyar – Kumbhalgarh block		27
5.	25/08/2020	Kachba – Gogunda block	• Field demonstration and sharing site specific landscape plan for following ecological plantation.	17



On site demonstration on plantation

Carbon sequestration potential created through afforestation work

As per the carbon sequestration methodology used by Seva Mandir which is an adapted version of Intergovernmental Panel on Climate Change (IPCC) guidelines on National Greenhouse Gas Inventories and United Nation Framework on Climate Change (UNFCCC). The following has been estimated:

With support from MakeMyTrip Foundation since 2009 till date (2020), approx. 10 lacs trees have been planted in an area of 1,650 hectares. This year 181 hectares of pastureland has been prepared to plant 37,290 plants.

The annual carbon sequestration created in 1,650 hectares is 21,400 CO₂ ton/yr. Using the framework in www.myclimate.org we have calculated the carbon footprint in the following way:

Carbon Footprint Calculation vis-à-vis human consumption

- Considering the per capita carbon footprint got an average Indian is 2.7 ton/yr. The per capita for the world is 7 ton/yr. (www.carbonbrief.org/the-carbon-brief-profile-india)
- Accordingly, we are able to offset carbon footprint of 7,926 people in India in a year or 3,057 people in the world in a year as per capita rate mentioned above.

The table below gives the Assumptions for per capita carbon footprint over flight travel from the following destination.

Particular	Delhi to Udaipur	Delhi to Kolkata	Delhi to Mumbai	Delhi to Chennai	Delhi to Bengaluru
Distance (KM)	500	1300	1100	1800	1700
Person	1	1	1	1	1
Co ₂ (Ton)/ person	0.153	0.225	0.232	0.324	0.315
Per KM/ person	0.000306	0.000173077	0.000210909	0.00018	0.000185294

MMT support, 21,400 tons of Annual Co₂ sequestration is created to offset carbon footprint.

Per capita (ton/km)	Distance	Footprint(ton) perperson	Footprint (ton) per 100people	Footprint(ton) per150people	Footprint(ton) per200people
0.153	500	77	7,650	11,475	15,300
0.232	1,000	232	23,200	34,800	46,400
0.225	1,500	338	33,750	50,625	67,500
0.324	2,000	648	64,800	97,200	1,29,600
0.325	2,500	813	81,250	1,21,875	1,62,500
0.325	3,000	975	97,500	1,46,250	1,95,000
0.350	5,000	1,750	1,75,000	2,62,500	3,50,000
0.350	10,000	3,500	3,50,000	5,25,000	7,00,000

Ecosystem specific species diversity conservation action

Ecologically, the common pastureland plays a vital role in maintaining ecological balance while providing important resources that sustain life maintenance of hydrological cycles, conservation of biodiversity, serving as sinks for greenhouse gases. Furthermore, regenerating such common pastureland present a significant carbon stock and have potentially critical role to play in climate change adaptation through maintaining ecosystem services. A total of 181 hectare area of common pastureland (9) and individual pastureland/farmland of 148 farmers has been covered by planting 37,290 saplings of different species. The ecosystem specific species diversity of common pastureland was maintained by following selection of native species (15-20 nos.) which are ecologically important.

Policy interventions

Under the project, involving local community for protection, conservation and regeneration of common pastureland is playing an important role in contributing to different policies at state level, which are as below:

The Rajasthan Panchayati Raj Act, 1994, Section 2 (XX) defines "Common land" as land which is not exclusive possession or use of any individual but is used by the inhabitants of a local area community. The Rajasthan Common Land Policy 2010" which recognizes the importance of "Village Common Land" in Rajasthan for the livelihood of the rural households and seeks to provide support to the people and their production system through restoration, protection, regeneration, unkeep and development of common land.

This policy, inter alia, aims to: Involve communities / user group in planning, regeneration and management of common pastureland, including distribution of benefits; Make certain that the poorer sections of the community have special claim on the produce from common land; Ensure social responsibility of the livelihood system and addressing the primary issues of sustainability ecological balance-environmental safety; Stop privatization of common pastureland

The 'Biological Diversity' or 'Biodiversity' is that part of nature which includes the differences in genes among the individual of species, the variety and richness of all the plant and animal species at different scale of local ecosystem, both terrestrial and aquatic.

India is one of the 12 Mega biodiversity countries of the world. With only 2.5% of the land area, India is already account 7.8% of the recorded species of the world. India is equally rich in traditional and indigenous knowledge, both coded and informal. India is a party of Convention of Biological Diversity (1992 Rio Earth summit) which is recognizes Biodiversity act 2002 and Rule 2002 in the country. The project initiatives further contributes to this Biodiversity Act 2002 by conserving biodiversity and sustainable uses of Biological resources by regeneration of common pastureland (181 hectares) through afforestation and other associated measures.

KPI - Quarter 3

S.No.	Key Project Indicators	Units	2020		
			Achieved 1st ~ 3rd Quarter	Planning 4th Quarter	2020 Overall Target
1	Survey & site selection	Hectares	181	60	190
2	Area of sites protected	Hectares	181	-	190
3	Soil – water conservation work	Hectares	181	-	190
4	No. of saplings planted	Numbers	37,290	-	40,000
5	No. of capacity building programmes conducted	Numbers	11	1	4

Plan for Quarter 4

Survey and identification of new sites for next year plantation

Weeding–hoeing of the completed plantation

Field trainings and regular meetings with local community, groups, PRIs and field team on protection and management of the common pastureland /plantation sites