

Offsetting Carbon Footprints in Southern Rajasthan

Quarter 2 Report

April - June 2021



Executive Summary

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

Context

Southern Rajasthan, a semi-arid zone with erratic weather patterns across hilly terrains; is a region highly vulnerable to climatic variation; receiving an average rainfall of 640 mm annually during the monsoons. Erratic monsoons and undulating terrain cause high soil erosion and poor water harvest in the region.

Seva Mandir's work area constitutes 72% of common land such as pastures, forests and revenue land across the total land area, supporting nearly 80-100% of the rural poor for food, fuel and fodder. However, anthropogenic pressure has led to extensive encroachments in the common lands of forests and village pastures. The private wastelands, although in better conditions compared to the commons, are also rapidly degrading as families do not have the required expertise and resources to protect, restore and manage these resources.

Land degradation results in the loss of soil and water regime in the downstream areas, lowering the net groundwater available to a critical category of population- marked by low availability of fodder, fuel, wood and other forest produce affecting their livestock productivity, income and food security.

The lack of trees and supporting fauna negatively affects the local ecology and importantly, the interest of local inhabitants in natural resource conservation. Afforestation, as a mitigation strategy is therefore crucial not only from an ecological restoration lens but also to provide sustainable livelihoods for the community to encourage resilient conservation of those lands.

Progress Update



1. Site Selection:

The common pastureland were selected with the consultation of village institutions i.e. Gram Vikas Samooh and respective Gram Panchayat. Regular village meetings were conducted to involve the community to mobilize them to establish effective collaboration for implementation of related activities at the village pastureland. Non-objection certificates (NOCs) have been provided by respective Gram Panchayat to the *Gram Vikas Samooh* for protection and regeneration of common pastureland through afforestation measures. Nine sites were selected during the period with the following details:

Table 1

S. No.	Name of the Sites	Area (Approx in Ha)	Block	Pit digging	Remarks
1	Bhopasagar	22	Bhinder	8,000	<ul style="list-style-type: none"> - Physical works like Loose-stone protection wall construction and Soil-Water conservation has been completed. - Pit digging works has been completed. - Assisted vegetative measures like direct tree seeding, etc. is under progress. - The required seedlings of selected species have been explored at forest nurseries. - Total area covered approx 160 hectares which is protected through above activities.
2	Gorana	21	Jhadol	8,000	
3	Melaniya Khurd	05		2,000	
4	Jagat	48	Girwa	8,000	
5	Nichli Katev I	12	Rishabhdev	3,000	
6	Nichli Katev II	07		3,000	
7	Khuntwada I	06	Kherwara	5,000	
8	Khuntwada II	07		5,000	
9	Hamerpal	32	Kumbhagarh	2,500	
	Total	160		44,500	

Apart from the above common pasturelands, some individual farmer's land were also selected for plantation at their minichak (group pastures).

	
Group pastureland (individual) – pit digging completed	Common pastureland –Pit digging completed



Completed loose-stone protection wall



Completed loose-stone protection wall

2. Protection of the Site:

The selected sites were protected by loose-stone protection wall. A total area of 160 ha was covered for protection and restoration of pastureland. The protection wall was strengthened through vegetative live fencing and put over thorny bushes. The efforts of social fencing were made to mobilize local community through Gram Vikas Samooh. A total of 6,581 rmts protection wall has been constructed.

3. Capacity Building Events:

To enhance the capacity of the community and the field teams, different orientation and training programmes were conducted by meetings at the field level; the details are as below -



Capacity building event – Community meeting cum orientation



Capacity building event – Community meeting cum orientation

Table 2

S. No.	Date	Place	Details of Programme	Number of participants
1	08/04/21	Bhopasagar	<ul style="list-style-type: none">• Orientation for <i>shramdaan</i> by community for loose-stone protection wall.• Conflict resolution between adjoining villages for pasture boundary demarcation.• Convergence plan consultation through MGNREGA by <i>Gram Panchayat</i>.	23
2	28/05/21	Jagat	<ul style="list-style-type: none">• Meeting for grass harvesting by villagers for cleaning ground for pit digging and activity.• Layout and orientation for pit digging and soil-water conservation imitative	15
3	02/06/21	Nichli Katev II	<ul style="list-style-type: none">• On-site demo of pit digging align with soil – water conservation initiatives.• Convergence action for loose-stone protection wall through MGNREGA by <i>Gram Panchaya</i>.	28
4	01/06/21	Khuntwada II	<ul style="list-style-type: none">• Orientation of village community for estimation of physical activities at the site.• Meeting with Gram Vikas Samooh planning and implementation of plantation activities.• Consultation held with respective <i>Gram Panchayat</i> for the consent and their involvement for sustainability.	38

4. Survival Assessment:

The survival count was undertaken at both the sites to assess live planted saplings. The village community was involved while survival assessment at the pastureland of plantation sites. The survival status of both sites is as below:

Name of the sites	No. of planted saplings	No. of live saplings	Survival %age
Lambapanwa	6500	5500	85%
Nichla Talab	4000	2700	68%
Kachba	5000	3500	70%
Bhewadiya	3000	2490	83%
Naron ka kheda	3000	2451	82%
Borikuwa	3500	1825	52%
Ranjitpua	5000	3000	87%
Vanpura	1000	500	50%
Aamliyaar	4000	3465	87%
Individual farmer's land	2290	1832	80%
Total	37,290	27,263	73%



Survival Assessment



Survival Assessment

5. Reducing Carbon Footprint:

As per the carbon sequestration methodology used by Seva Mandir (see CO2 sequestration guide in the Annexure file) 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 Make My Trip since 2009 to 2020, approx. 10 lacs trees have been planted in an area of 1650 hectares. This year 160 hectares of pastureland has been prepared to plant 43,000 plants. The annual carbon sequestration created in 1650 hectares between the year 2009 and 2020 is 21,400¹ CO2 ton/yr (see Annexure MMT sheet in the Annexure file).

Carbon Footprint Calculation vis-à-vis human consumption

Using the framework in www.myclimate.org we have calculated the carbon footprint in the following way:

- Considering the per capita carbon footprint got an average Indian is 2.7 ton/yr. The per capita for the world is 7 ton/yr².
- Accordingly, we are able to offset carbon footprint of 7926 people in India in a year or 3057 people in the world in a year as per capita rate mentioned above.

Carbon Footprint Calculation vis-à-vis Flight Travel (one way trip) ³		
SL	Particulars	Delhi to Mumbai
1	Distance (Km)	1148
2	Person	1
3	Co2 (ton)/ person⁴	0.232
4	Assumption (21400 Tons per annum as per MMT supported afforestation programme)	21400
5	No. of customers offset (Tons/Per person emission)	92,241
6	No. of Trip offset (Tons/per trip emission)	710

The table gives the assumptions for per capita carbon footprint over flight travel from Delhi to Mumbai (one way).

Impact Study - An impact study with more robust methodology including both GIS and field-based approach is being conceptualized with the help of external experts from technical institutes. It will include the afforestation work done in the past 10 years where plantation of 1 million trees in southern Rajasthan, has been done.

¹ Based on the assumption of CO2 sequestration from the afforestation programme supported by MMT from the year 2009 to 2020. The calculations from the year 2012 onwards have used estimated MAI (tons/ha/yr) because these sites have not been calculated in the Base year 2015-16. These sites will be calculated in 2021-22, Base Year Phase III. As of how it is an average of 2015-16 MAI (see Annexure for more details).

Note: MMT support for plantation from 2009 to 2020 was partial, i.e. their contribution went to a pool of comprehensive funds used for plantation.

² Timperley, J. (2019, March). *The carbon Brief Profile: India*. Retrieved from Carbon Brief: <https://www.carbonbrief.org/the-carbon-brief-profile-india>

³ For detailed calculations see sheet Carbon footprint Flight in the Annexure

⁴ **Source:** co2.myclimate.org - Delhi (IN), DEL to: Mumbai (IN), BOM, One way, Economy Class, ca. 1,100 km, 1 traveller

6. Local Employment Generation:

Local employment has been generated through implementation of physical activities like loose-stone protection wall, pit digging, soil-water/soil-moisture conservation, planting seedlings, transport, direct tree seeding, weeding-hoeing, etc. The local community has been involved to engage laborer to execute above said physical activities at the site and wages paid as per scheduled rates decided by Govt. of Rajasthan for particular activity. The details of employment and wages generated are given as below table:

Annual targeted Employment Generation (No. of Labour days)	Quarterly Employment Generation (No. of Labour days)	Quarterly income generated through wages paid (In Rs.)
16,860	10,315	20,77,096

7. Gender Inclusion & Empowerment:

Rural women are playing an important role for natural resource based livelihood in villages. Major part of plantation sites are common pasturelands on which village communities are depended for fuel wood, grass and leaf fodder for livestock population, non-timber forest produce, wild fruits, etc. for their home consumption. Women are actively engaged in harvesting of such resources from common pastureland of villages. Apart from this, males of villages almost migrate (daily or seasonal) to nearby / outside cities to get wage employment for family survival. The women, elders and children stay at home who contributes in daily household activities and by engaging in village level wage employment. Women of the village engaged as wage labourer in the above said physical activities. Around 60-70% women were involved to accomplish the task at the particular plantation site. The details of women employment and wage generated are given in the below table:



Annual targeted Women Employment Generation (No. of Labour days)	Quarterly Woman Employment Generation (No. of Labour days)	Quarterly income generated by women through wages paid (In Rs.)
12,792	6,499	14,53,967

A developed village pasture reduced the drudgery of women as they don't have to travel far to collect fodder and fuel, which saves their time and they can utilize that time in many other works. Also, it impacts the education of young girls. In the absence of a developed village pasture, women have to travel far for fodder and fuel collection and in such circumstances, they take the help of their young daughters and engage them in household and other works. This affects their education, as they are not able to give time for their studies, and the possibility of drop out among girls also increases in such situations. So, village pastures also help in ensuring continuity of education for girls.

	
<p>Gender inclusion and empowerment</p>	<p>Gender inclusion and empowerment</p>

8. Convergence and ShramDaan:

Mostly common pasturelands are selected for the plantation of targeted saplings. The local Gram Panchayat is actively involved in planning and implementation of activities proposed for the respective sites. The physical activities like loose stone protection wall, etc. have been contributed by respective Gram Panchayat through MGNREGA convergence. Approx 2011 mandays was generated through MGNREGA scheme in panchayat. Apart from this, village community has also contributed labour days as ShramDaan during the period. Mainly fencing work, protection wall repairing, etc. has been completed by contributing approx 644 mandays during the period.

	
<p>MGNREGA Convergence through Gram Panchayat loose - stone protection wall</p>	<p>MGNREGA Convergence through Gram Panchayat loose - stone protection wall</p>



ShramDaan by community



ShramDaan by community

9. Key Point Indicators – 2nd Quarter:

S.N.	Key Project Indicators	Unit	2021		
			Planning 2nd Quarter	Achieved 2nd Quarter	2021 Overall Target
1	Survey & site selection	Hectares	0	160	190
2	Area of sites protected	Hectares	190	160	190
3	Soil – water conservation work	Hectares	190	160	190
4	No. of saplings planted	Numbers	0	0	43,000
5	No. of capacity building programmes conducted	Numbers	1	4	4

10. Plan for 3rd Quarter:

- Complete the site specific plantation and other assisted vegetative measures at selected plantation site as per landscape plan.
- Exploring plant seedlings of selected species and procuring, transport at the site.
- Repairing and maintenance of loose-stone protection wall, live fencing, etc.
- Execute field trainings and regular meetings with local community, village institutions, PRIs and field team on implementation of project activities.
- Establish linkages with technical institutes for carbon sequestration study initiation.
- Initiate weeding-hoeing activity for growth of planted seedlings.