

MakeMyTrip Foundation



PROGRESS REPORT January - March 2020



Figure 1. Biofence plantation consisting of Seabuckthorn and Wild Rose. Tractor path for ease of watering has been made through the plantation.

Project Progress Brief

Biofence Plantation

This quarter¹ we have begun planting the ‘living fence’, previously referred to in our project heads as ‘Miyawaki 2020’, henceforth known as ‘Biofence Plantation’. This is aimed to reach around the entire perimeter of the site over the course of time. It is being protected by the fabricated fence which was commenced in the last quarter. The plantation is shown in the above picture. This quarter, we have managed to plant more than 4500 saplings along this fenceline and expect more to come in the coming weeks despite the current conditions. We have chosen two primary species for this plantation - the native seabuckthorn, which provides medicinal berries and excellent habitat for wildlife, and the native wild rose, which is tolerant to Ladakh’s dry conditions.

Greenhouse Propagation

This quarter, a lot of soil work was done in the greenhouse, which is referred to within the project head ‘Nursery’. Planting beds have been created, the soil has received amendments of manure and clay and the irrigation system has been planned out and materials purchased. We have also been collecting planting material to be propagated in our greenhouse and nurseries (see image of greenhouse below). This quarter alone we have collected and planted more than 41,000 cuttings which will be ready for planting outside in the coming autumn season. We have focused on 4 main species, the two mentioned above, as well as one native tree known as Russian Olive and one exotic

¹ Note: From this quarter onwards, these reportings will follow financial year quarters. Therefore, ‘this quarter’ (January to March) is considered as quarter 4, 2020 and ‘next quarter’ (April-June) will be quarter 1, 2020.

tree which is very dry tolerant, called Black Locust. See figure 3 & 4 below for the early spring growth of cuttings from our greenhouse. There has also been some success from seed propagation of a local flowering desert herb (see figure 5). We are additionally experimenting with propagating the native Juniper tree from seed. We have sought advice from the Himalayan Forest Research Institute for the optimal process (see image 6). With this experience, we will soon be able to sow seeds of these plants throughout the biofence plantation and across the campus.



Figures 2 & 3. Greenhouse filled with cuttings of 4 native plants & Wild Rose putting out new spring growth in greenhouse.



Figure 4. Early spring growth of native tree, Russian Olive. These cuttings were taken in February and are already growing in the greenhouse.



Figure 5 & 6. Native desert plant, *Nepeta flocossa*, is growing from seed in our greenhouse. Preparations for sowing Juniper seeds - the process of germination can take up to 12 months.

Pilot Plantation

The plants in the original Miyawaki Pilot Plantation largely remain dormant until this time. We have begun watering regularly and hope to see a lot of new growth as spring commences in the coming month. Some limited new growth of one species is however visible at this time (see figure 7 below).



Figure 7. New spring growth of *Lepidium latifolium* in the Miyawaki Pilot Plantation.

Apple Orchard

Apple Orchard work consisted of early December mulching to protect trees from the cold in the last quarter. This year we have attached an important windbreak netting, made from natural jute fibres and attached in the most optimal way so as not to degrade with the strong spring and summer winds (see below). This windbreak is also reinforced with wires attached to concrete as we found last year, the metal fencing with shade net alone was not able to withstand the wind velocity.



Figure 8. Apple Orchard protected now by a jute windbreak against strong spring and summer winds.

We intend to expand the present apple orchard and plant two more orchards alongside, totaling at 792 fruit trees. This type of orchard is a High Density Plantation (HDP) and uses varieties which produce fruit within the first 2 years (far quicker than common varieties). We will be experimenting with another rootstock of apples which originates from Siberia and is likely to produce hardier trees that can better withstand Ladakh's conditions. We have begun soil preparations for the new orchards (see below) and will this spring quarter, begin developing a root cellar, which will be necessary to store the abundant fruits produced to supply the growing campus during winter times.



Figure 9. Soil preparations for new apple orchards with new windbreak on the left and the existing apple orchard on the right. These trenches will be filled with a mix of manure and clay to support new trees.

Challenges

This quarter, we have faced some challenges largely due to the onset of COVID-19.

Spring plantation:

One of our initial plant sources, a local village where we were procuring saplings from, was the first location to be infected by COVID-19 and so we quickly had to find another procurement source. UT Ladakh had responded quite readily to the initial threat and labourer availability lessened immediately. Prior to this, being the end of the winter season, labour availability has been irregular as workers have been prioritising larger contract works in Leh and others have been intermittently involved in the winter tourism. As mentioned previously, we have managed to plant more than 4500 in the Biofence Plantation this quarter.

Greenhouse 2:

Due to the shortage of labourers, not enough stone had been broken to commence works on the second greenhouse planned. On top of this, the onset of COVID-19 has meant that construction contractors have had to stop work. We will continue these works as soon as it is feasible, aiming for the foundation to be laid and works to begin in quarter 2 (July-Sept).

Borewell:

Given the COVID-19 situation, borewell works have been delayed. Additionally, the company has again raised their prices for the expected works from 800/ft to 1200/ft, raising the projected cost by 5lakh. We expect this work to recommence in the coming quarter 1.

Staffing:

Additionally, our team head, Stanzin Angmo has been unavailable this entire quarter due to some health concerns and has been out of Ladakh. This has meant that the capacity and communication within the team has been a limitation.

Financial Update for Quarter 4 - January to March 2020

Cost head-wise expenditure for Q4

Cost head	Total
Facility - Moveable	476,425
Material - Consumables	653,992
Material-Tools and Equipment	8,140
One Time Procurement - Facilities	1,009,142
Permanent Staff	859,726
Total	3,007,424

Project-wise budgeted & utilised in Q4

Project	Budgeted	Utilised	Variance	Comment
Apple Orchard	287,140	50,750	-82.3%	It was anticipated that large quantities of manure would be procured in this quarter, but this was not possible. Additionally, machinery availability was less at the end of winter, with only 1 tipper truck locally available which was being utilised for plant procurement.
Biofence Plantation (formerly 'Miyawaki 2020')	856,553	336,590	-60.7%	It was decided that additional clay (to that purchased last quarter) would not be further required and instead we would experiment with sections of plantation under lesser inputs. Given that plant procurement was halted due to COVID, machinery & labour costs budgeted for this, were not utilised.
Nursery	1,122,961	195,877	-82.6%	Stone breaking for Greenhouse 2 had started, after some difficulty in finding this labour in the latter part of winter, had to sharply stop in early March. The material, construction & work contract costs were all budgeted for this quarter but could not be utilised.
Other Plantations	0	559,000	100.0%	Given the restrictions put on HIAL from March, we mobilised an external plantation coordinator in the Kargil region to organise village-level plantations. They have been in a better position to utilise these funds for plantation during this lockdown period.
Commons (incl borewell & staff)	1,355,930	1,865,208	37.6%	This variance is due to the inclusion of the internal consultancy of Ms Gitanjali JB & Dr. Sonam Wangchuk. Although they have been making regular contributions to these projects since inception, this cost has not been accounted for until now. As well, the borewell has been accounted for in this quarter.
Total	3,622,584	3,007,424	-17.0%	

Plans for the next quarter - April - June 2020 (Q1)

The following activities are planned for April - June, financial quarter 1, 2020.

- Spring plantation continuation: We hope to continue sourcing plants from Phyang village in small numbers throughout this lockdown and following periods. These will be immediately planted by the remaining labourers on site. Additionally, once social distancing measures are lifted, we intend to hold a larger plantation event, inviting local villagers, schools and Ladakh officials.
- Village Plantations: To meet the MMT planting targets and beyond, we are currently engaging with two village representatives, one from Kargil area and the other working in Zaskar region, to mobilise their local interest in undertaking plantation. Forestation team will be working with the head coordinator of the Ice Stupa team - who established these contacts - to support these village leaders and provide resources so that plantation projects can be expanded across Ladakh. We intend to support them financially whilst monitoring their capacity in coordinating medium-scale plantations, and building their capacity where necessary. One area of skill-developing would be in developing nurseries whereby villages can propagate plants for subsequent seasons in an ongoing manner. Once blockages have lifted, visits to these villages will be made, capacity assessments furthered and successes monitored.
- Windbreak plantations: With the consultancy expertise of the former Divisional Forest Officer of Leh, we plan to plant 7,000 fast-growing, drought-tolerant trees strategically around the HIAL site to reduce wind velocity. Together these windbreak plantations and the Village Plantations (mentioned above) will come under the project head 'Other Plantations'.
- Nursery propagation: Continuation of collecting planting material, like cuttings, by staff will add to our nursery and ensure high numbers of plants will be available for autumn plantation at site.
- Apple Orchard installation & plantation: We hope to install and plant our new Fruit orchards this quarter, likely in May or June at the latest. This, however, is depending upon roads opening from Jammu and Srinagar. We will continue preparations for the tree arrival on site once earth-moving machinery becomes available again.
- Cow shed design & development: One of two transdisciplinary projects at HIAL will be the architectural design of cow sheds. This will contribute, not only to self-sufficiency in dairy products for HIAL staff and students, but to the necessary development of a closed-loop soil fertility system for future plantations. This project is planned under the 'Compost' project head of Forestation team's work.
- Root cellar design & development: As mentioned above in Project Progress Brief section, we intend to build a root cellar to store the fruits we produce for winter storage and consumption. This will be included under the 'Apple Orchard' project head in the future.
- Borewell: works on the new borewell will be completed this coming quarter. With the raised price accounted for in the following budgets as well as the necessary cabling, are included in the project 'Commons'.

Cost head-wise budget for Q1, 2020

Cost head	Total
Facility - Moveable	984,586
Material - Consumables	1,889,682
Material -Tools and Equipment	73,840
One Time Procurement - Facilities	6,181,264
Permanent Staff	1,159,958
Total	10,274,331

Project-wise budget for Q1, 2020

Cost head	Total
Apple Orchard	1,765,866
Compost	1,200,000
Biofence Plantation (formerly 'Miyawaki 2020')	910,309
Nursery	273,650
Other Plantations (incl. 'Windbreak & Village Plantations')	1,473,854
Commons (incl. add. borewell & staff)	4,665,652
Total	10,274,331

Team:

- Stanzin Angmo – Forestation & Agriculture Faculty & Project Manager, will lead the academic work & projects from April-July quarter onwards
- Clare Harrison – Agricultural Research & Project Officer, looks after the research work for Forestation team, Agriculture & Afforestation curriculum development for next year's Fellowship & coordinates the site work for all plantation projects
- Motup Rabgais - Field Supervisor, joined in March and provides an important link between project coordinators and maintenance officers.
- Tsering Chozsom – Plantation Maintenance Officer, for watering the plants & handling other grounds-based work including labourer supervision
- Mohammed Hussain – Plantation Maintenance Officer, will handle procurement & site work for the projects
- Wage labourers – Physical work for Forestation site infrastructure