

SANTULAN SOCIETY

'Tribal Women Empowerment' Employment Generation Through 'Organic Fruit-Shrub Plantation'

At Kukru, Madhya Pradesh



Concise Project Proposal By

SANTULAN SOCIETY

Registration No.: 25608 – 22.08.1992

'ENERGY TOWER'
64, B-Sector, Kasturba Nagar
Bhopal - 462 023
Madhya Pradesh, INDIA.

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Title

**‘TRIBAL WOMEN EMPOWERMENT’
EMPLOYMENT GENERATION THROUGH
‘ORGANIC FRUIT-SHRUB PLANTATION’**



AT KUKRU, MADHYA PRADESH

Demonstration Project By

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**Village – Kukru, Tehsil – Bhainsdehi, District – Betul
Madhya Pradesh**

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1. Introduction

Santulan Society, Kukru, aims to ensure **inclusion of Tribal Women in the mainstream** by creating opportunities for **income generation through** implementation of a **dedicated not-for-profit plantation** project.

The prime objective of this report is to provide a helicopter view of the:

- Tribal Women empowerment opportunity at hand
- Organic Fruit-Shrub Plantation Project

1.1. About Santulan Society

When a group of conscientious individuals decided to contribute their mite for Rural Development in KUKRU – a tribal village in remote corner of Betul District in M.P. – their guiding factor was the famous saying of Swami Vivekananda: “Nothing can be done with Empty Stomach”.

Therefore, the primary objective of **SANTULAN SOCIETY** was to ensure Income generation – which would be followed by Education and Health – Care. The methodology was to promote sustainable agricultural activities – with which the villagers are accustomed and further they have land resource which however is not so fertile, in view of extreme scarcity of water in semi-hilly terrain.

1.2. Past Activities of Santulan

All the activities of Santulan Society have been funded by members and member organizations till today. Besides others, **Santulan Society initiated several activities such as:**

- **Construction of Dug-wells** to store rain water for consumption of human beings and cattle – 8 wells dug; wells are still useful.
- **Development of Goatary** by giving 5 goats to each family.
- **Cultivation of Medicinal Plants** – for the benefit of local inhabitants.
- **Cultivation of CITRONELA**, an Aromatic Grass used as mosquito repellent, under guidance of Regional Research Laboratory of CSIR in Jammu – There was bumper crop from second year.
- **Fruit Plantation** – Lemon (Neemboo), Mango (Aam), Bengal Currant (Karonda), Guava (Amrood), Indian Gooseberry (Amla), Indian Lilac (Neem), Wild Cherry, Black Plum (Jamun), Spanish Cherry (Bakul), Indian Beech (Karanja), Bengal Quince (Bel Patra), Indian Jujube (Ber), Jackfruit (Kathal), Mulberry (Shahatoot) and Almond (Baadaam)

Total 255 saplings planted in last 2 years. About 130 Lemon plants will yield sufficient fruits to enable tribal women to make pickles.

2. The Proposal

The Rationale And The Drivers

2.1. The Preface

The tribal population is an integral part of India's social fabric and has the second largest concentration after that of the African continent. Women in a tribal society play a vital role in their social, cultural, economic and religious ways of life and are considered as an economic asset in their society. But they are still lagging far behind in different walks of life like education, employment, good health and economic empowerment, etc.

In light of the above scenario, to ensure inclusion of Tribal Women in the mainstream through improvement of socio-economic conditions, Santulan Society, Kukru, proposes the '**Tribal Women Empowerment**' through **Employment Generation** from realization of '**Organic Fruit-Shrub Plantation**' project.

After lot of investigation, discussion, study of several options with Institutes of repute of ICAR and also with successful Farmers, **the most promising organic plantation activity proved to be the cultivation of 'Lemon (Neemboo)'**.

The Lemon Plantation Project aims to:

- i. Generate local employment and create additional sources of income
- ii. Promote afforestation activities and demonstrate concept on PAN India basis

2.2. Immediate Action Plan

Before taking up Large Scale Plantation, a Demonstration Project needs to be established on suitable area, with scientific guidance. Arrangements should be made to establish a permanent and adequate source of water supply.

3. The Lemon Plantation

3.1. About Lemon (*Citrus limon*)

The Lemon (*Citrus limon*) is a species of small evergreen tree in the flowering plant family Rutaceae, native to South Asia, primarily Northeast India. Its chromosome number is $2n = 18$. Lemon is one of the most important categories of citrus.

In India, in terms of area under cultivation, citrus is the third largest fruit crop after Banana and Mango with immense potential for commercial plantation.

- i. About 277 / 400 saplings can be planted in 1 Ha. area with a separating distance of 6 m x 6 m / 5 m x 5 m.
- ii. The plant yield commences from the 3rd year with 50 - 60 fruits per tree and stabilizes in the 8th year. Average production is about 1000-1500 fruits per tree after stabilization. Economic life of plantation is around 15 to 25 years.
- iii. The selling price varies from Rs. 40 to 50 per Kg and there is high market demand both in India and abroad.
- iv. Besides selling as raw fruit with medicinal value, there would be possibility for value addition through preparation of Jam and / or Pickle by village women.

3.2. Essential Climatic Conditions

Citrus fruits in India are cultivated under varied agro-ecological conditions right from arid and semiarid areas of southwest region to humid tropical climate of northeast India. Citrus fruits grow best between a temperature range of 13 °C to 37 °C. Soil temperature around 25 °C seems to be optimum for root growth.

3.3. Lemon Plantation in India

In India, Lemon can be cultivated on wide range of soils ranging from sandy loam or alluvial soils of north India to clay loam or deep clay loam or lateritic/acidic soils in the Deccan plateau and north-eastern hills.

Lemon is popularly grown in Gujarat, Andhra Pradesh, U.P., Assam and Karnataka. It is widely planted as a protective hedge due to presence of dense branches and sharp spreading thorns. Owing to its hardy nature and varied utility, it can be included under wasteland cultivation.

3.4. Lemon Products

Some of the various uses of Lemon are:

- The sour and astringent unripe fruit is used for making pickles and chutneys
- Lemon can lend a wonderful flavor to sauces, salads, desserts, and drinks
- Lemon can also be used to preserve the food
- It can be used to clean utensils and can also be used in laundry
- Indian women use lemon in the kitchen for preparation of various food recipes
- The scent of lemon is deterrent for pests in the house
- Bathing soap and dish wash bar containing lemon are available in the Indian market
- Lemon squash is very popular among the Indian people

3.5. Medicinal and Therapeutic Properties of Lemon

Lemon has proven medicinal and therapeutic values. **It is widely used as a medicinal plant by tribal community in India.** The medicinal and therapeutic applications include use of fruit, leaves, root and shoot of Lemon plant.

- Lemon possesses anti-scorbutic properties.
- If ingested orally or applied externally, lime juice and its oil are very beneficial to the skin.
- Lime has an enticing fragrance that waters the mouth and thus facilitates primary digestion (even before you taste it, the digestive saliva fills your mouth). Then the acids that are in it do the rest.
- The oil, containing Flavonoids and certain oils, extracted from lime is extensively used in anti congestive medicines such as balms, vaporizers, inhalers etc. due to presence of Kaempferol..
- An outstanding weight reducer as well as a great refresher and anti oxidant drink is a glass of warm water with a full-lime juice in it.

3.6. Lemon Plantation Efforts by Santulan

Santulan has gained experience of organic Lemon plantation from its demonstration efforts, as mentioned below:

- Around 130 lemon saplings were planted at Kukru. The plants have indicated good survival rate – with limited watering.
- To reach up to a total figure of 300, Santulan will further plant 170 more lemon saplings at Kukru and will ensure regular supervision and monitoring.

4. Project Planning and Execution

A graphical representation of the various steps involved in project planning and execution is presented in the following sections.

4.1. Empowerment Strategy

Tribal Women are born farmers. Such women demand only marginal training to perform specialized agricultural activities. Santulan adopts simple approach for the Tribal Women Empowerment, outlined in **Figure - 1**.

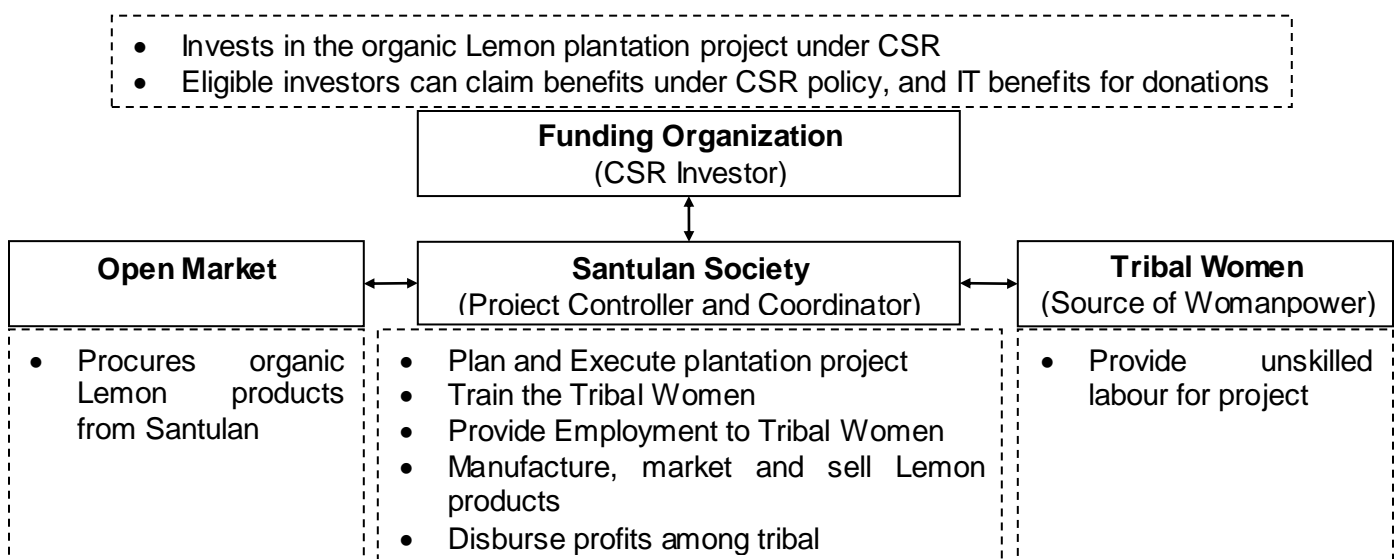
Figure - 1: The Tribal Women Empowerment Strategy.



4.2. Not-For-Profit Business Model

The tentative Not-For-Profit Business Model is illustrated in **Figure - 2**.

Figure - 2: The Not-For-Profit Business Model.



4.3. Project Operations Plan

The Lemon plantation project execution flow can be logically divided into two distinct stages. A graphical representation of flow of **Project Stages 1 and 2** is presented in **Figures 3 and 4**, respectively.

Figure - 3: Graphical Representation of 'Project Stage – 1' Flow.



Figure - 4: Graphical Representation of 'Project Stage – 2' Flow.

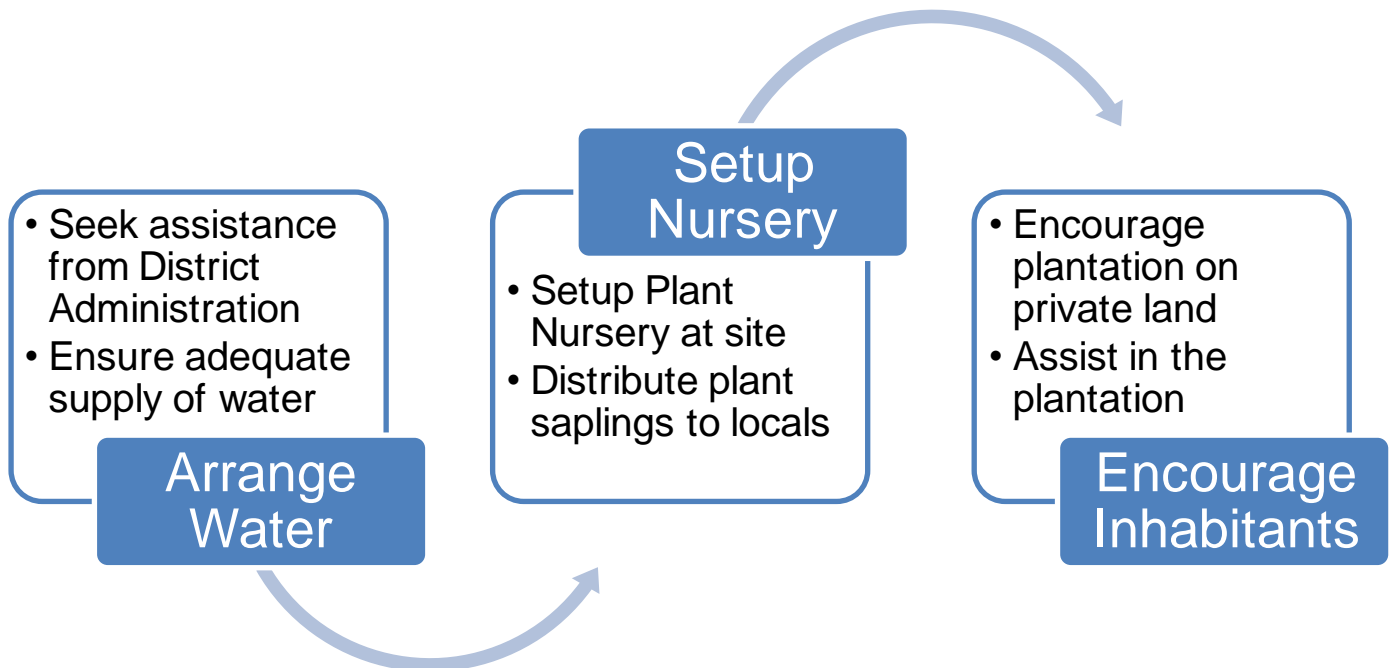


Santulan would provide due training for preparation and marketing of products, i.e., pickles, etc. Farm Yard Manure (FYM) would be procured locally from the women of Kukru, thereby leading to additional income generation.

4.4. Expansion of Lemon Plantation

The plan to further expand lemon plantation by encouraging participation from local inhabitants is illustrated in **Figure-5**.

Figure - 5: Expansion Plan.



Expansion strategy for lemon plantation would include:

- Plant initially 300 lemon shrubs at the project site
- Seek assistance from District Administration for establishment of a permanent and an adequate source of water supply, primarily for irrigation purposes
- Setup Plant Nursery at the project site
- Distribute saplings from Nursery to the tribal people
- Encourage the tribal inhabitants to acquire lemon saplings from the Nursery and undertake plantation on the periphery / unused part of their private lands

As of now Santulan is acquiring water tankers (with 5000 Litres capacity) @ INR 700 per tanker. Approximately minimum of 4 water tankers per month are required in summers and at least 2 per month in winters. This has become a huge constraint for Santulan in terms of overall viability of plantation projects.

5. The Organic Lemon Plantation Project

5.1. Adaptability of Lemon to Kukru

Lemon plants have demonstrated adaptability to Kukru's geographical and climatic conditions.

- i. **Kukru experiences adequate rainfall (900 – 1200 mm per year):** Water requirement is observed to be 5 litres per plant, twice a week during 4 months of winters and on alternate days during summers. At an altitude of around 1000 metres above MSL, this can be facilitated through storage of rain water.
- ii. **Lemon plants keep cattle away:** The plant is thorny and not eaten by Goat and Cattle. The plantation area in Kukru need not be provided with fencing.
- iii. **The organic Lemon plantation project focuses on tribal women:** The plant grows up to a height of 2 to 6 m and women can easily pluck the fruits. Further, activities like plantation, pruning, watering, spraying, de-weeding, FYM application, etc., can be efficiently executed by the women of Kukru.
- iv. **Due to hilly terrain availability of flat land is limited:** Villagers – particularly Ladies can be encouraged to carryout plantation only on the periphery of their farm land which would act as a natural fencing and allow them to carryout usual cultivation in the main farm area.
- v. **Lemon plantation project is characterized by low gestation period – an early source of permanent income:** The plant grows to flowering in a few years and fruit is available in no time thereafter.

Soil test carried out at Government laboratory indicates suitability of Kukru soil for plantation of Lemon. Soil test report is attached as **Annexure-2**.

5.2. Proposed Capacity of Plantation

Initially 300 lemon saplings will be procured and planted for the commencement of demonstration project activities.

5.3. Project Prerequisites

- i. Restoration of on-site irrigation/watering facility**, i.e., existing pond/water tank – Construct concrete walls and base to stop seepage and ensure sufficient water availability through rain water harvesting.
- ii. Renovation of on-site storage facility** – A new building at project site has already been constructed. This building would be used as a workplace for pickle making, etc. and would also provide storage for housing raw materials and ready to ship products.

5.4. Salient Features of Kukru Site

Some of the characteristic advantages of Kukru site are:

- i. 4 Acres of Land** is readily available through one of the Promoters of Santulan Society along with Electricity supply.
- ii. Existing Infrastructure and Resources:**
 - Three unattached houses/structures on the proposed project site
 - Underground water tank for irrigation, etc.
 - Electric Power Supply Connection
 - Accommodation facilities, lighting, fans, farming tools, etc.
 - A new building is constructed at the project site

5.5. Project Site Details

A factual representation of project site details is presented under **Tables 1, 2 and 3.**

Table - 1: Location Details.

S. No.	Location Details	
1.	Village	Kukru
2.	Patwari Halka	Kukru
3.	Tehsil	Bhainsdehi
4.	RI Division	Bhainsdehi
5.	District	Betul
6.	State	Madhya Pradesh

Table - 2: Land Occupancy Details.

S. No.	Land Occupancy Details	
1.	Khasra (Plot) Number	164
2.	Area	1.416 Hectares
3.	Name of Possessor	Mr. Manan Kumar Deb
4.	Type of Possession Right	Land Owner

Table - 3: Miscellaneous Details.

S. No.	Particular Description	Attribute
A. Standard Site Details		
1.	Terrain	Rolling
2.	Contours	Moderate
3.	Soil Type/ Condition	Mountainous : Soil/Rock (i.e., mixed soil-rock with soil proportion dominant)
4.	Landscape	Natural and beautiful
5.	Transportation Accessibility	
	Roadways	Linked to National Highway (NH)-46 at Betul, at an approximate distance of 85 KM
	Railways (Nearest Railway Station)	Betul Railway Station, at an approximate distance of 85 KM
	Airways (Nearest Airport)	Dr. Babasaheb Ambedkar International Airport, Nagpur, at an approximate distance of 270 KM
6.	Landmark Location (Nearest City/Town)	<ul style="list-style-type: none"> • Bhainsdehi and Betul, Madhya Pradesh • Paratwada and Amravati, Maharashtra
B. Geographical Coordinates		
1.	Latitude	21°29'34.8828" N
2.	Longitude	77° 28' 13.9224" E
3.	Altitude	1118.18 Metres above MSL

5.6. Project Site – Maps and Views

Figure - 6: Map of Madhya Pradesh.

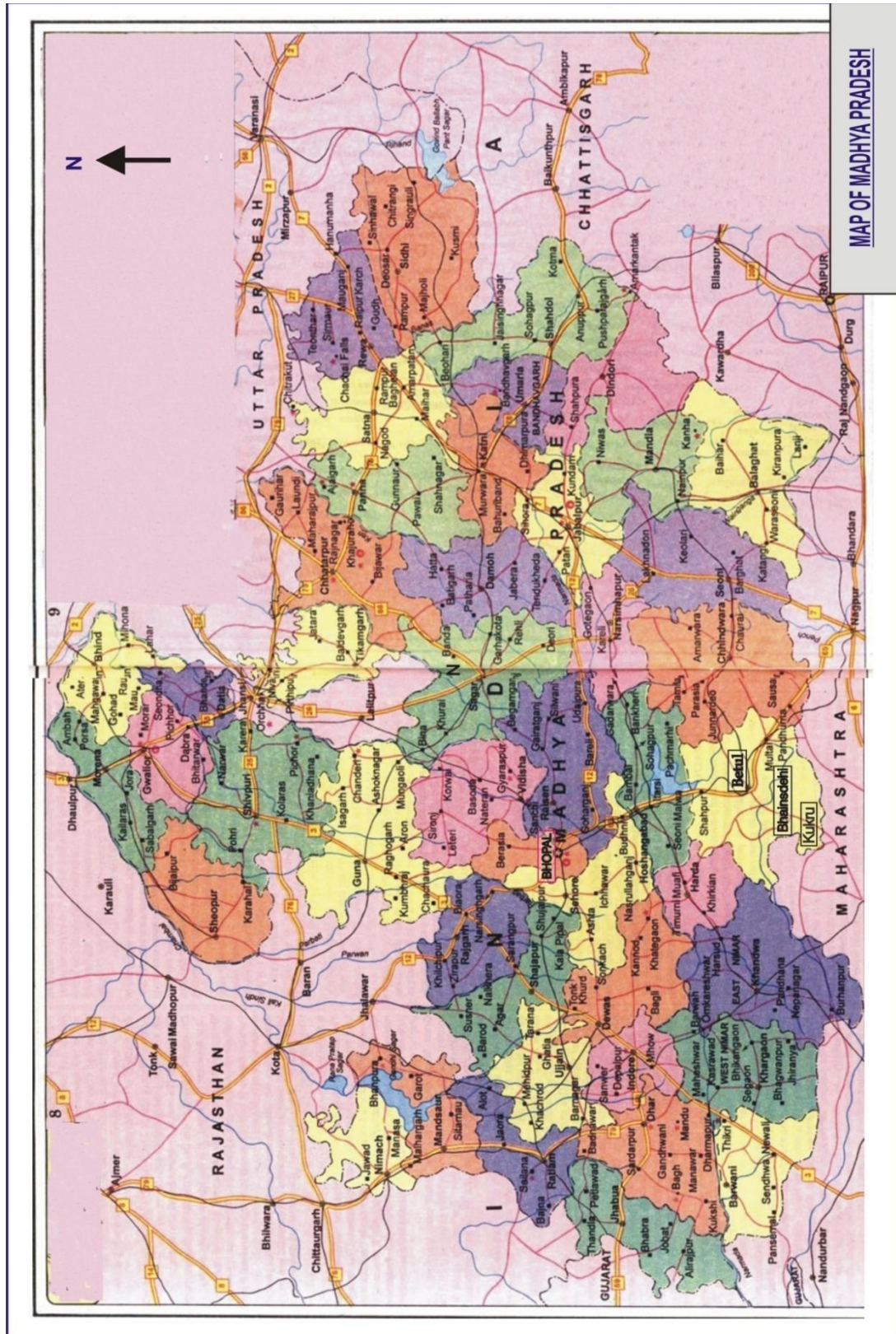
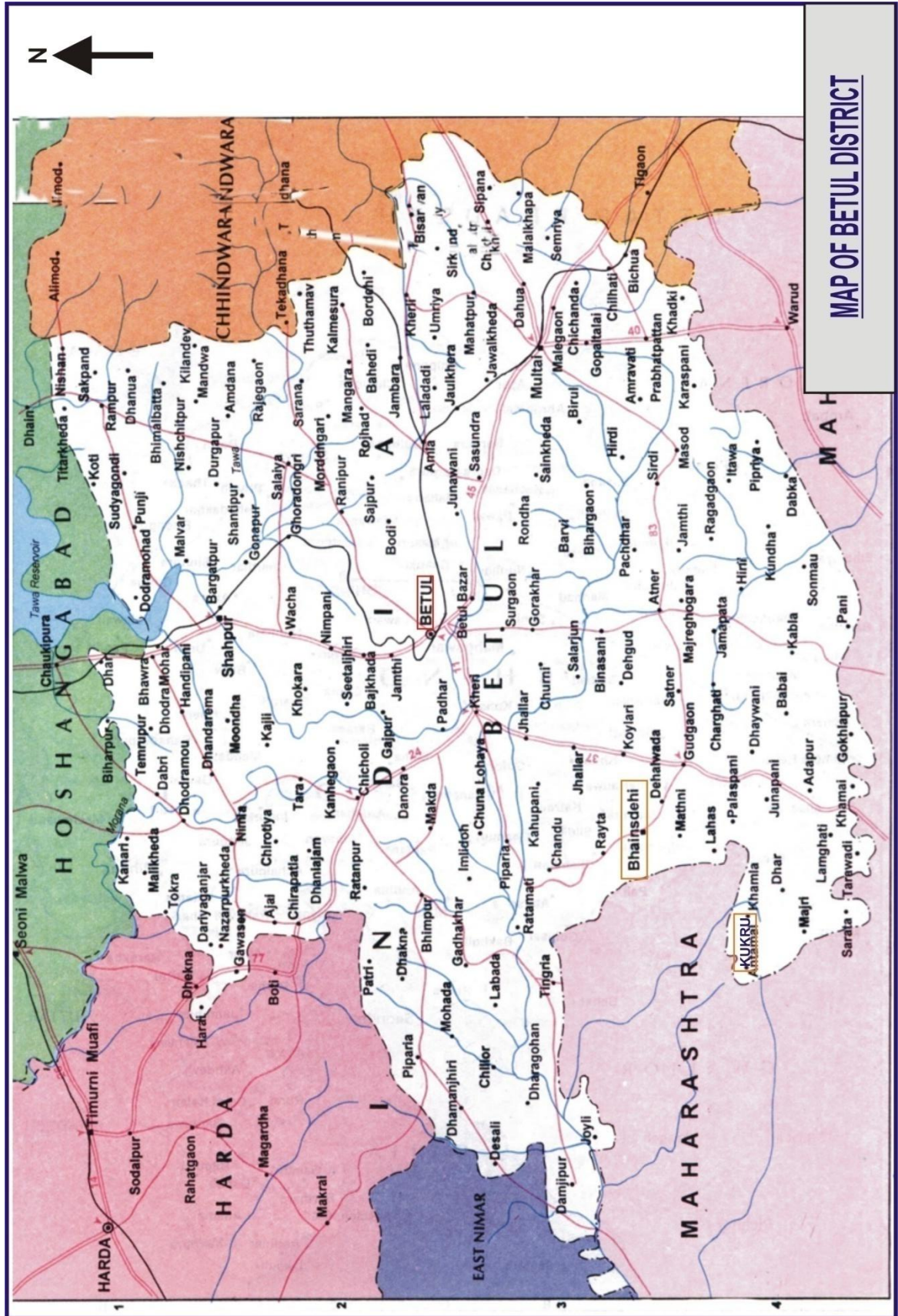


Figure - 7: Map of Betul District.



MAP OF BETUL DISTRICT

Figure - 8: Google Earth View - 1.

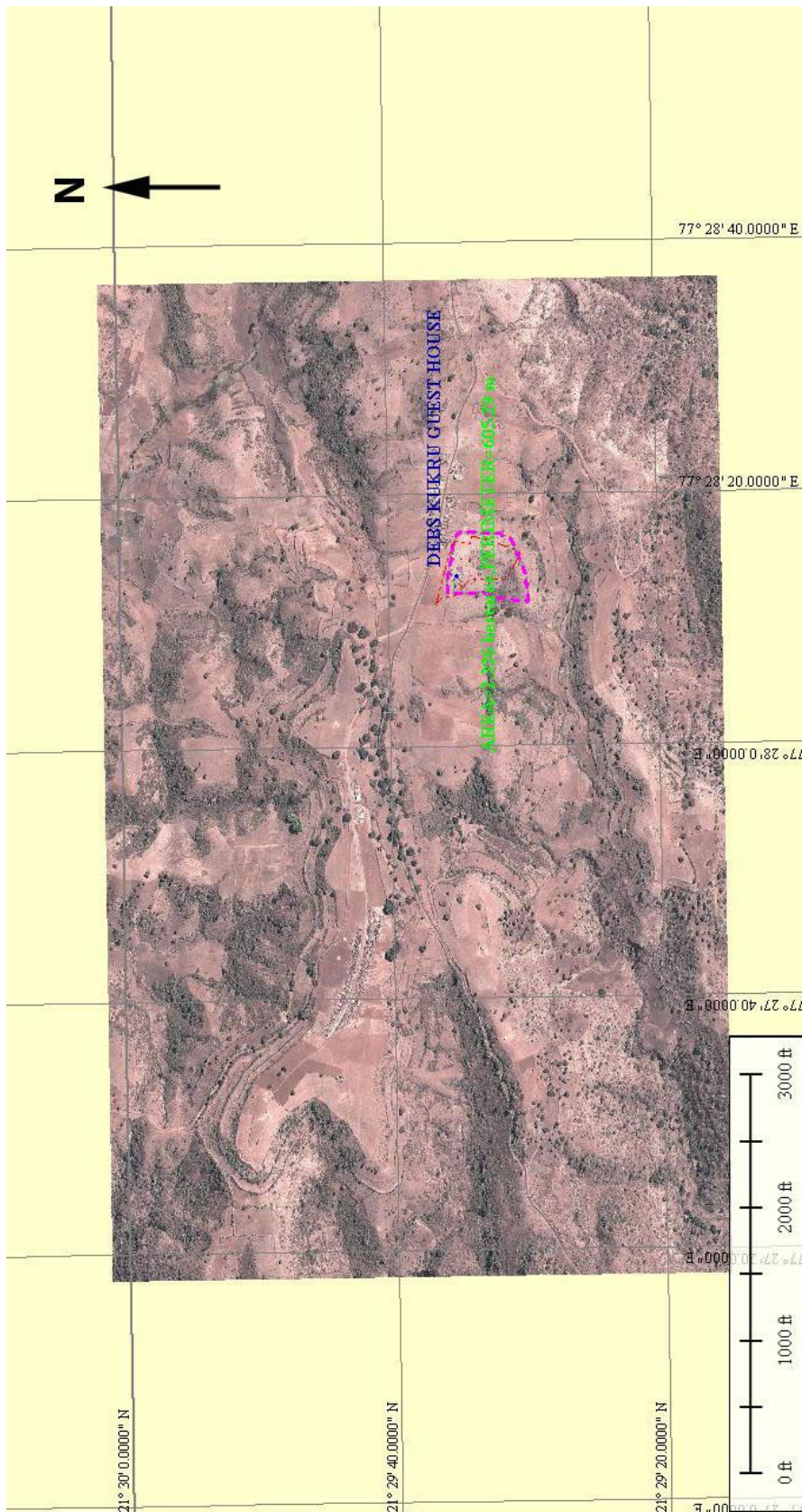
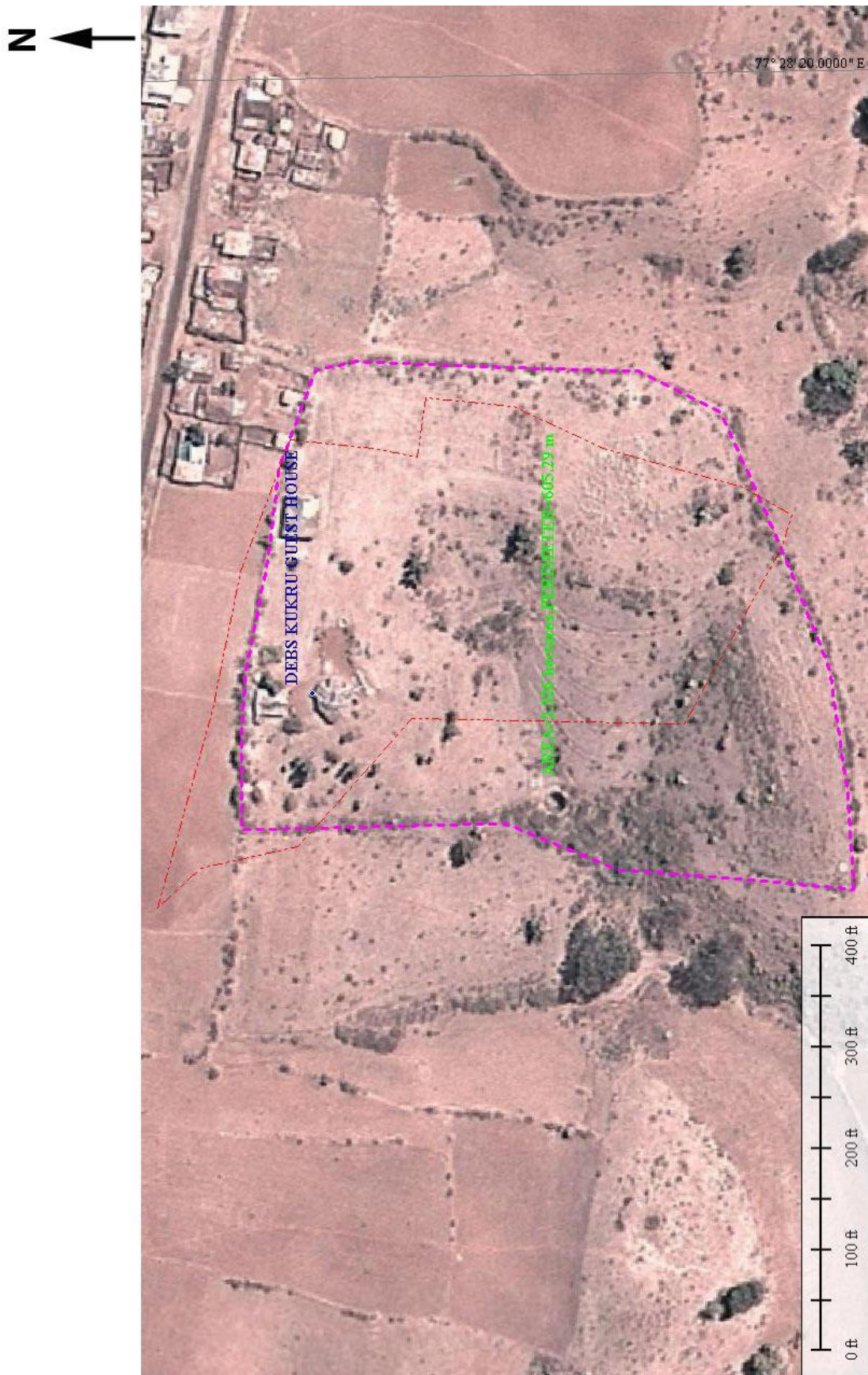
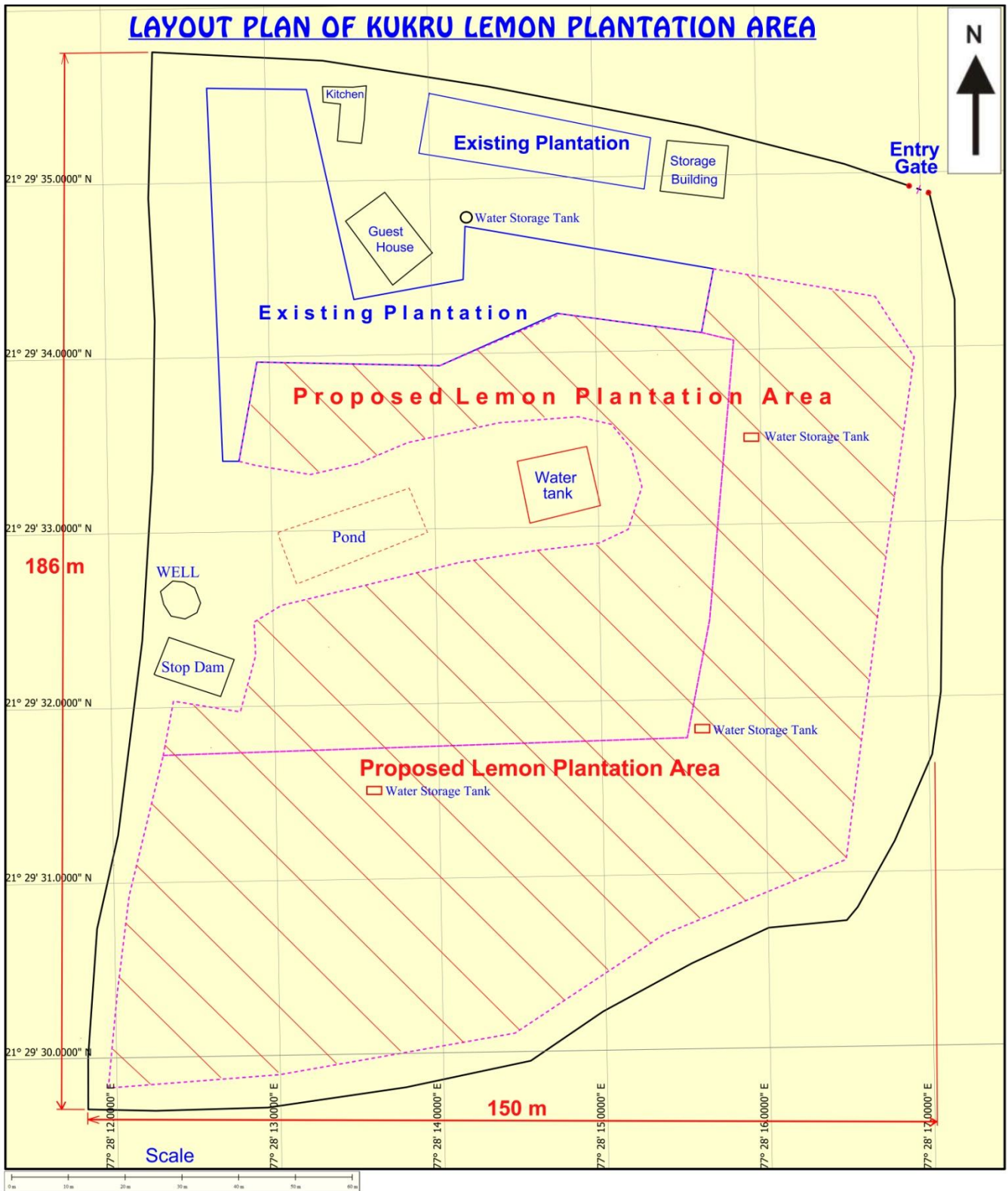


Figure - 9: Google Earth View - 2.



5.7. Lemon Plantation Layout Plan

Figure - 10: Lemon Plantation Layout Plan.



6. Conclusion

The plantation activities of Santulan Society in Kukru have so far been primarily hindered due to the scarcity of water resources in the vicinity. Adequate supply of water is essentially required for irrigation of plants during the initial periods of plantation.

Santulan Society is now seeking external assistance for the arrangement of permanent and adequate water supply to not only ensure the survival of its existing plantation but also for the establishment of the much awaited Plant Nursery.

Now since Lemon -

- Is one of the most suitable plantation options for Kukru Soil and Weather
- Requires minimum monitoring and supervision
- Has high commercial and medicinal value
- Demonstrates possibility of large scale plantation even in periphery of farmer's private land
- Generates financial returns in a very short period of time

- It offers us an opportunity to engage local population (more particularly tribal women) in a commercially viable activity with high potential for income generation, avoiding the vagaries of nature (rainfall) through arrangement of a permanent source of water supply for irrigation of plants.

- i. In-depth knowledge and expertise would be gained through the Lemon Plantation Demonstration Project involving local population.
- ii. The Demonstration Project site and facilities shall be used as a **Plant Nursery** to provide lemon saplings to the villagers.
- iii. Once Santulan successfully reaches its target of 300 lemon plantation and a permanent source of water supply is available at its disposal, it will setup a Nursery to further increase the number of lemon plantations in the area by encouraging the local inhabitants to acquire lemon saplings from the Nursery and plant on the periphery / unused part of their private lands. Subsequently the entire project setup would become a purely commercial activity ensuring income generation for Tribal Families.

SANTULAN SOCIETY will continue to ensure coordination, marketing and sale of the Lemon products.

Contact Details

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Secretary

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Santulan Society

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Bank Account Details

M/S Santulan Society

Current Account Number: 53020637306

RTGS/IFSC Code: SBIN0030135

State Bank of India, Shahpura Branch

Bhopal, Madhya Pradesh.

End of Proposal



ANNEXURE - 1

Photographs of Lemon Farm at Kukru









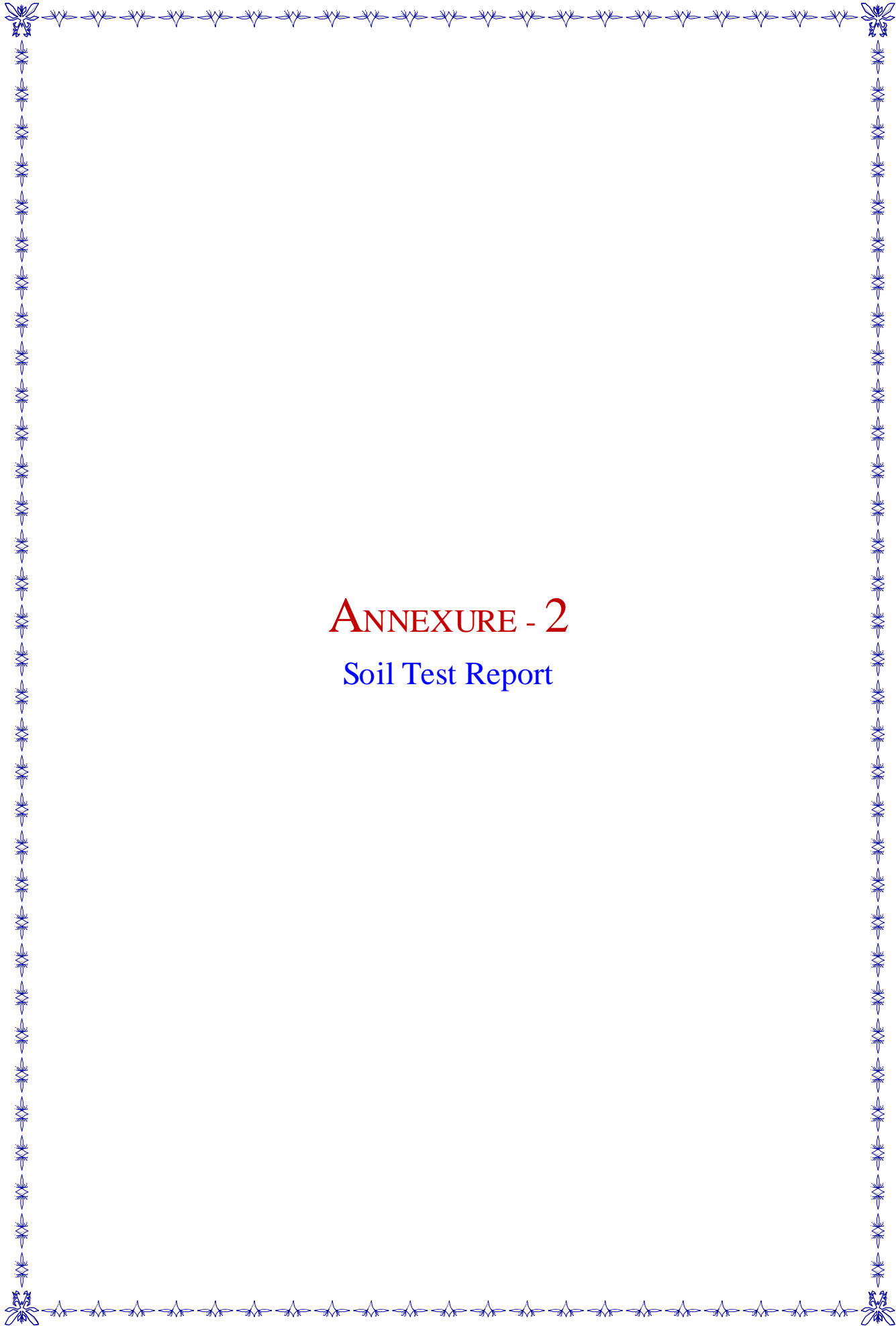










A decorative border in blue ink surrounds the page. It consists of a repeating pattern of small, stylized floral or star-like motifs connected by thin lines. The corners of the border are embellished with larger, more intricate floral designs.

ANNEXURE - 2
Soil Test Report



सत्यमेव जयते

Department of Agriculture, Cooperation & Farmers Welfare
Ministry of Agriculture and Farmers Welfare
Government of India
State Department of Agriculture(M.P.)



Soil Health Card Number

MP482537/2017-18/24733421

Farmer Name
Father Name
Validity

manankumardev

From: To:

SOIL HEALTH CARD

Farmer's Details

Name	manankumardev
Address	XXXXX
Village	XXXXX
Sub-District	XXXXX
District	XXXXX
PIN	XXXX-XX
Aadhaar Number	xxxxxxxx8648
Mobile No.	9826-XXXX-XX
Gender:XXXXX,Category:XXXXX	

Soil Sample Details

Soil Sample Number	MP482537/2017-18/24733421
Date of Sample Collection	06-06-2017
Survey No.	12/17
Khasra No./ Dag No.	-
Farm Size	0.93 Hectares
Irrigated	Irrigated
#Error	

Name of Laboratory		SOIL TESTING LAB BHOPAL			
SOIL TEST RESULTS					
#	Parameter	Test Value	Unit	Rating	
1	pH	7.40		Moderately alkaline	
2	EC	0.11	dS/m		
3	Organic Carbon (OC)	0.76	%	High	
4	Available Nitrogen (N)	226.00	kg/ha	Low	
5	Available Phosphorus (P)	24.80	kg/ha	Medium	
6	Available Potassium (K)	680.00	kg/ha	Very High	
7	Available Sulphur (S)	18.00	ppm	Sufficient	
8	Available Zinc (Zn)	1.12	ppm	Sufficient	
9	Available Boron (B)	--	ppm		
10	Available Iron (Fe)	26.82	ppm	Sufficient	
11	Available Manganese (Mn)	18.75	ppm	Sufficient	
12	Available Copper (Cu)	4.07	ppm	Sufficient	

Fertilizer Recommendations for Reference Yield (with Organic Manure)

General Recommendations		S.No	Crop Variety	Reference Yield	Organic Fertilizer & Quantity	Bio Fertilizer & Quantity	Fertilizer Combination-1 (kg/ha)		Fertilizer Combination-2 (kg/ha)	
1	Lime / Gypsum									
State Department of Agriculture(M.P.)										
1	Wheat HI-1454				FYM 10 t/ha	Azotobacter 5.000 g/kg of seed	Neem Coated Urea 348	Diammonium Phosphate (16:44:0) 136	Single Superphosphate (16% P2O5) Granulated 375	Neem Coated Urea 300
2	Bengal Grams (Gram) JG-1				FYM 10 t/ha	Rhizobium 5.000 g/kg of seed	Neem Coated Urea 59	Diammonium Phosphate (16:44:0) 114	Single Superphosphate (16% P2O5) Granulated 313	Neem Coated Urea 19
3	Lentil(Masur) JL-1				FYM 10 t/ha	Rhizobium 5.000 g/kg of seed	Neem Coated Urea 59	Diammonium Phosphate (16:44:0) 91	Single Superphosphate (16% P2O5) Granulated 250	Neem Coated Urea 27
4	Soyabean JS-93-05 (JAWAHAR SOYBEAN 93-05)				FYM 10 t/ha	Rhizobium 5.000 g/kg of seed	Neem Coated Urea 59	Diammonium Phosphate (16:44:0) 169	Single Superphosphate (16% P2O5) Granulated 500	Neem Coated Urea 0
5	Arhar (Tur) HYV				FYM 10 t/ha	Rhizobium 10.000 g/kg of seed	Neem Coated Urea 87	Diammonium Phosphate (16:44:0) 136	Single Superphosphate (16% P2O5) Granulated 375	Neem Coated Urea 40
6	Maize Ganga Safed-2 CM-400xCM-300B				FYM 10 t/ha	Phosphate Solubilising Bacteria 5.000 g/kg of seed	Neem Coated Urea 520	Diammonium Phosphate (16:44:0) 182	Single Superphosphate (16% P2O5) Granulated 500	Neem Coated Urea 456
							Potassium Chloride (Muriate of Potash) 22	Potassium Chloride (Muriate of Potash) 22	Potassium Chloride (Muriate of Potash) 33	Potassium Chloride (Muriate of Potash) 33