

## **Manipal University Jaipur's Processes to Prevent Water Pollution**

Clean and safe water is a fundamental necessity for human health and the environment. Manipal University Jaipur, as centers of education and innovation, have a responsibility to protect and preserve its surrounding ecosystems and communities. One crucial aspect of this responsibility is to prevent polluted water from entering the water system, including pollution caused by accidents and incidents at the university.

One of the primary steps Manipal University Jaipur takes is to ensure it complies with all environmental regulations and standards set by local, state, and federal authorities. This includes obtaining permits and licenses that govern water discharges and pollution prevention. Manipal University Jaipur regularly monitors its activities to ensure that they do not exceed established pollution limits. Universities often deal with various hazardous materials, including chemicals used in laboratories and maintenance activities. To prevent these substances from contaminating water sources, Manipal University Jaipur has strict protocols for handling, storage, and disposal. Hazardous waste is typically collected and disposed of in accordance with environmental regulations. Stormwater runoff can carry pollutants into local water bodies. Manipal University Jaipur implemented comprehensive stormwater management plans to control and treat runoff. This includes installing retention basins, using permeable surfaces, and employing filtration systems to remove contaminants before they can reach nearby rivers or lakes. Accidents can happen, and universities need to be prepared to respond swiftly to prevent pollutants from reaching water systems, Manipal University Jaipur has well-defined spill response plans in place, outlining the steps to contain, clean up, and report spills of hazardous materials. Training programs ensure that staff and students are knowledgeable about these procedures. Manipal University Jaipur has extensive green spaces. Implementing sustainable landscaping practices can significantly reduce water pollution risks. This includes using native plants that require fewer chemicals and fertilizers, practicing responsible irrigation, and minimizing pesticide use. The university generates wastewater from various sources, including laboratories, restrooms, and dining facilities. To ensure that this wastewater is treated properly, Manipal University Jaipur operates on-site treatment facilities. These facilities are designed to remove contaminants and meet stringent water quality standards before discharging the treated water.

Through compliance with environmental regulations, responsible management of hazardous materials, effective stormwater control, spill response plans, sustainable landscaping, wastewater treatment, research and innovation, and community engagement, Manipal University Jaipur is taking significant steps to prevent polluted water from entering the water system.



PREVENTION OF  
WATER POLLUTION  
AT MANIPAL  
UNIVERSITY  
JAIPUR



MANIPAL UNIVERSITY  
JAIPUR

*(University under Section 2(f) of the UGC Act)*



## CLEAN AND SMART CAMPUS

- Solar Power Plant of 2.3 MWp is installed on roof-top of the buildings, Ground Mounted and parking shed in the Campus - one of the largest roof-top Solar Power Plant in India for any Private University.
- The University is a '**Zero Discharge Campus**', with Rain Water Harvesting, Waste water recycling and reuse and Ground Water recharging in place. Water conservation through campus wide drains and ponds for water collection.
- Sewage treatment plants on both sides of the campus.
- Campus greening through extensive tree plantation.
- The University has a Bio-Gas generation system using Kitchen waste, producing 30kg of Gas per day with 500 kg of Kitchen waste.
- All buildings are optimally designed to maximize daylight and minimize heat gains.
- Digital Campus





**MANIPAL UNIVERSITY  
JAIPUR**

*(University under Section 2(f) of the UGC Act)*

## SOLID WASTE MANAGEMENT- Segregation & Collection at Source



Solid waste Generation Data





**MANIPAL UNIVERSITY  
JAIPUR**

*(University under Section 2(f) of the UGC Act)*

## MEDICAL WASTE SEGREGATION MANAGEMENT



## SOLID KITCHEN WASTE MANAGEMENT

Collection frequency & clearance: Twice a day

Time: 9:00 AM & 4:00 PM

Sr.No.	Department/ Area of source of waste (Every point of waste generation within the campus should be identified and listed - cross)	Types of waste generated in each of the point source (for each type of waste, use separate row)						Dry (in kgs/ day)
		Food wastage	Paper/Card board	Plastic	Wood	Glass	Metal	
Mar-19	MUJ Academic Blocks		6790	65	60		120	7035
Mar-19	MUJ HOSTEL Blocks	4279						
Apr-19	MUJ Academic Blocks		92	33	44	0	20	189
Apr-19	MUJ HOSTEL Blocks	3689					940	940
May-19	MUJ Academic Blocks		73	28	31	2	17	151
May-19	MUJ HOSTEL Blocks	2452		591			860	1451
Jun-19	MUJ Academic Blocks		68	25	31	1	17	142
Jun-19	MUJ HOSTEL Blocks	1160					700	700
Jul-19	MUJ Academic Blocks		85	36	45	0	26	192
Jul-19	MUJ HOSTEL Blocks	4638					240	240
Aug-19	MUJ Academic Blocks		101	40	47	0	29	217
Aug-19	MUJ HOSTEL Blocks	4596		260			380	640
Sep-19	MUJ Academic Blocks		97	30	62	1	37	227
Sep-19	MUJ HOSTEL Blocks	2839						
Oct-19	MUJ Academic Blocks		170	95	92	0	82	357
Oct-19	MUJ HOSTEL Blocks	4799						
Nov-19	MUJ Academic Blocks		66	55	71	0	75	192
Nov-19	MUJ HOSTEL Blocks	4155						
Dec-19	MUJ Academic Blocks		81	58	48	0	45	187
Dec-19	MUJ HOSTEL Blocks	2033						
Jan-20	MUJ Academic Blocks		112	62	51	0	76	225
Jan-20	MUJ HOSTEL Blocks	6195						
Feb-20	MUJ Academic Blocks		73	70	51	8	82	202
Feb-20	MUJ HOSTEL Blocks	6178						
Mar-20	MUJ Academic Blocks		55	50	46	8	49	159
Mar-20	MUJ HOSTEL Blocks	5159						
Apr-20	MUJ Academic Blocks		23	17	26	2	17	68
Apr-20	MUJ HOSTEL Blocks	NIL						
May-20	MUJ Academic Blocks		40	46	35	5	41	126
Jun-20	MUJ Academic Blocks		38	35	24	3	42	100
Jul-20	MUJ Academic Blocks		43	33	33	6	59	115
Aug-20	MUJ Academic Blocks		20	21	31	3	26	75
Sep-20	MUJ Academic Blocks		27	16	22	6	41	71





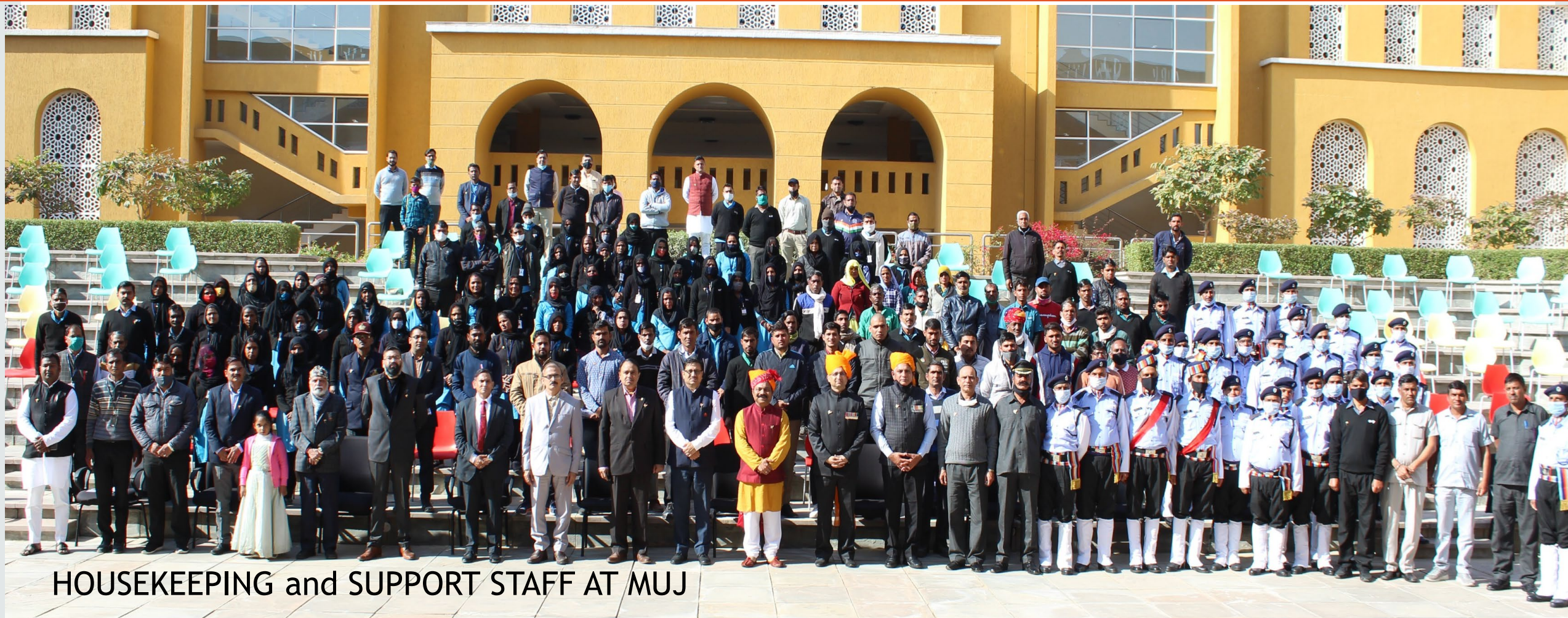


**MANIPAL UNIVERSITY  
JAIPUR**

*(University under Section 2(f) of the UGC Act)*

Clean And Smart Campus 2021

## HUMAN RESOURCE FOR WASTE MANAGEMENT



**HOUSEKEEPING and SUPPORT STAFF AT MUJ**





## GREEN CLUB @ MUJ since 2012

The Green Club of Manipal University Jaipur has been an active social and environment fruition club since 2012 and has continued to aid a helping hand for the benefactor factor of the environment. Since its inception, the club has motivated the students or the Y-Generation and faculty members to take initiative about the environment that we subsist in which sorrowfully is under rapid depletion. From social awareness, technical solutions, to more evident clean drives and plantation, the club has been working extensively on such projects and pioneers path breaking ideas for the future.



➤ [Green Club Report \(click here\)](#)



### T44 Gulmohar *Fabaceae*

Planted by - Shri Purushottam Agarwal  
Year of Plantation - 2014  
Family- Leguminosae - Leguminosae

Nature - Deciduous  
Climate - Temperate and tropical  
Texture of leaf - wrinkled/pulvini  
Shape & Colour of leaf - Range from pinnately or palmately compound to simple, green  
Foliage of tree - Dense  
Soil Type - soil that is above freezing temperatures and offers enough warmth  
Height of tree - 10-15m  
Diameter of trunk - 2 inches  
Region - predominant outside the tropics

Uses  
- Anti-diabetic activity  
- To treat polymenorrhoea, anemia, ulcers and menorrhagia (during pregnancy).  
- In the treatment of diarrhoea, in overcoming the protein deficiency Kwashiorkor and can also impact hypocholesterolaemic conditions, and thyroxine-induced hyperglycaemia.







### T40 Rugtoora *Spathodea campanulata*

Planted by - Shri N.R Narayan Murthi  
Year of Plantation - 2018  
Family- Bignoniaceae

Nature - Deciduous  
Climate - Cooler tropical climate  
Shape & Colour - Bark: when young is pale grey brown and smooth which turns to grey-black.  
Foliage of tree - Compact, round crown of dense and dark green foliage  
Height of the tree - 7-25 m  
Region - West coast from Guinea to Angola, and inland across the tropical rainforest region to southern Sudan and Uganda

Uses  
- Cure rashes and inflamed skin,  
- Lower blood sugar levels.  
- Treat ulcers,  
- Treat diabetes,  
- Cure glaucoma







### T43 Kadamb *Neolamarckia cadamba*

Planted by - Smt. Vasanti Pai  
Year of Plantation - 2012  
Family- Madder family

Nature - Evergreen  
Climate - Tropical  
Shape & Colour - Flowers: flowers are sweetly fragrant, red to orange in colour, occurring in dense  
Foliage of tree - broad crown and straight cylindrical bole  
Soil Type - it grows well in deep moist alluvial soils, often along river banks.  
Height of tree - up to 45 m  
Diameter of trunk - 100cm  
Region - South and Southeast asia

Uses  
- Low-grade timber and paper  
- Timber is used for plywood and light construction.







### T39 Sheesham *Dalbergia sissoo*

Planted by - Shri G.S. Sandhu (IAS)  
Year of Plantation - 2014  
Family- Leguminosae - Mimosoideae

Nature - Deciduous Tree  
Climate - Indian subcontinent and southern Iran  
Texture of trunk: are often crooked when grown in the open. Leaves are leathery  
Foliage of tree - Round foliage  
Soil Type - Soils range from pure sand and gravel to rich alluvium of river banks.  
Height of tree - 25 m (82 ft)  
Diameter of trunk - 2-3 m  
Region - Native to India, Pakistan and Nepal

Uses  
- Decoration of leaves is useful in gonorrhoea.  
- Wood is alterative, useful in leprosy, boils, eruptions and to allay vomiting.  
- The wood is used for making doors, window frames, furniture, especially cabinets and much more.  
- The pulp of wood is also used for making papers.







### T10 Saat Patti *Alstonia scholaris*

Planted by - Dr. Ajay Kumar  
Year of Plantation - 21st March 2012  
Family- Apocynaceae

Nature - Evergreen  
Climate - Tropical  
Leaf Texture - Glossy & Greyish  
Leaf Shape & Colour - Flattened roots similar to buttresses.  
Foliage Shape - Slightly round.  
Soil Type - Red Alluvial  
Tree Height - 20-40 mts.  
Bark Diameter - 100-200cms.  
Region - Malaysia Pakistan

Uses  
- *Alstonia scholaris* has been used in different system of traditional medication for the treatment of diseases.  
- The wood of *Alstonia scholaris* has been recommended for the manufacture of pencils.  
- Wood close to the root is very light and of white color, and is used for net floats, household utensils, trenchers, corks, etc.  
- Used for landscape purpose.







### T17 Neem *Azadirachta indica*

Planted by - Dr. Kiran Mazumdar Shan  
Year of Plantation - 9th August 2014  
Family- Mahogany family, Meliaceae

Nature - Evergreen  
Climate - Tropical & Semi-Tropical Region  
Leaf Texture - Mildly soft  
Leaf Shape & Colour - Long medium to dark green  
Foliage Shape - Round  
Soil Type - All types  
Tree Height - 15 to 20 mts.  
Bark Diameter - 30-80 cms.  
Region - Burma, Iran, India and Pakistan

Uses  
- The neem tree is noted for its draught resistance. It can grow in many different type of soil.  
- Dried neem leaves prevents insects from eating clothes and can also be used in storing rice.  
- The flowers and the shoot are eaten as a vegetable.  
- Products made from neem tree can be used as medicine.  
- Neem is a key ingredient in pesticides.







### T19 Bottle Brush *Callistemon*

Planted by - D.S.Chauhan  
Year of Plantation - 18-01-2017  
Family- Myrtle

Nature - Evergreen  
Climate - Temperate regions  
Texture of flower - Fury  
Shape & Colour - Flower: Red flower spikes  
Foliage of tree - Crown is rounded  
Soil Type - Well-drained, sandy soil. Also grow in clay or loam  
Height of tree - 10-15 ft  
Diameter of tree - 10 to 15m  
Region - Western North America and in colder regions in greenhouses

Uses  
- Ornamental landscaping  
- Common remedies for treatment of diarrhoea, dysentery and rheumatism







### T24 Ashoka *Saraca asoca*


Planted by - Shri J.C.Mohanty  
Year of Plantation - 18-01-2017  
Family- Legumes

Nature - Evergreen  
Climate - Rain-forest tree. Central areas of Deccan plateau  
Texture of Bark: Warty surface  
Shape & Colour - Leaf: Green colored leaves with oblong shape.  
Foliage of tree: Shiny foliage  
Height of the tree - 10-15' tall  
Diameter of trunk: 3m  
Region - Central areas of the Deccan plateau

Uses  
- Reduces acne, pimple  
- Very useful in gynaecological conditions  
- Boosts memory power  
- Beneficial in diabetes







### T15 Maulsari *Minusops elengi*

Planted by - Ms Krishna Poonia  
Year of Plantation - 18-01-2017  
Family- Sapotaceae (Mahua family)

Nature - Evergreen  
Climate - Summer season  
Shape & Colour - Bark: Thick bark and appears dark brown in color  
Foliage of tree - Glossy, dark green leaves  
Soil Type - Rich free draining loamy and sandy soil with pH of 5.5-8.5  
Height of tree - 9-18 m (30-59 ft)  
Diameter of trunk - 1m (3ft 3in)  
Region - Tropical forest in South Asia, Southeast Asia and northern Australia

Uses  
- Treatment and maintenance of oral hygiene  
- Rinsing mouth with water solution made with bakul helps in strengthening the teeth  
- Prevents bad breath  
- Keeps gums healthy












### T42 Bargad *Ficus benghalensis*

Planted by - Dr. Ramdas M. Pai  
Year of Plantation - 21-03-2012  
Family- Moraceae

Nature - Evergreen  
Climate - Monsoon and rain forests  
Texture of leaf - leathery  
Shape & Colour - Heart and green  
Foliage of tree - Round Foliage  
Soil Type - High moisture  
Height of tree - up to 30m (100 ft)  
Diameter of trunk - spreads laterally indefinitely  
Region - south eastern region of India

Uses  
- Boosts immunity  
- Prevents depression  
- Treats vomiting  
- Lowers cholesterol  
- Prevents inflammation

### T19 Bottle Brush *Callistemon*

Planted by - D.S.Chauhan  
Year of Plantation - 18-01-2017  
Family- Myrtle

Nature - Evergreen  
Climate - Temperate regions  
Texture of flower - Fury  
Shape & Colour - Flower: Red flower spikes  
Foliage of tree - Crown is rounded  
Soil Type - Well-drained, sandy soil. Also grow in clay or loam  
Height of tree - 10-15 ft  
Diameter of tree - 10 to 15m  
Region - Western North America and in colder regions in greenhouses

Uses  
- Ornamental landscaping  
- Common remedies for treatment of diarrhoea, dysentery and rheumatism







### T8 Peela Gulmohar *Petroporum pterocarpum*

Planted by - Dr. D. Srikanth Rao  
Year of Plantation - 21st march, 2012  
Family- Legumes

Nature - Deciduous  
Climate - Tropical warm climate  
Leaf Texture - Fern like leaves  
Leaf Shape & Colour - Rusty red tomentose.  
Foliage Shape - Round  
Soil Type - moist, but well drained soil.  
Tree Height - Approx. 10 mts.  
Bark Diameter - 20-25 mts.  
Region - Sri Lanka, the Andamans & Australia

Uses  
- Gulmohar is well known for its beautiful flowers.  
- It also has some medicinal properties like Anti-diabetic activity, Anti-bacterial activity, Anti-diarrheal property, Hepatoprotective/Cytotoxic property, Anti-microbial activity, Anti-inflammatory activity









### T6 Karanja *Millettia pinnata*

Indian sub continent & Southeast Asia

**Planted by** - Shree Abhay Jain

**Year of Plantation** - 21st March 2012

**Family**- Fabaceae



**Nature** - Evergreen

**Climate** - Humid & Sub Tropical Region

**Leaf Texture** - Soft & Shiny

**Leaf Shape & Colour** - Round & Glossy

Deep Green

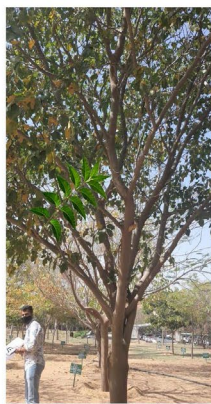
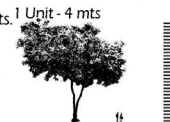
**Foliage Shape** - Round

**Soil Type** -Sandy stony & clayey

**Tree Height** - 15 to 25 mts.

**Bark Diameter** - 50 cms.

**Region** - Temperate Asia, Australia



#### Uses

- It is used for landscaping purpuss due to large canopy & snowy fragrant flowers.
- The bark can be used to treat wounds caused by poisonous fish.
- The fruits & sprouts are used in many traditional remedies.
- Its oil known as Pongamia oil is used in soap making & as a lubricant.
- The residue of oil extraction is used as a fertilizer.

### T45 Kachnar *Bauhinia variegata*

Eastern Africa

**Planted by** - Shri Sunil Arora

**Year of Plantation** - 16-04-2012

**Family**- Leguminosae - Legumes



**Nature** - Deciduous

**Climate**- The desert/desert terrain plain of Western or Eastern Ghats.

Plateaus, plains of Ganges, Doab Punjab, eastern ranges, north east zone, high altitudes.

**Shape & Colour of tree** - Twigs of tree are slender, light green, angled, hairy and brownish grey in colour.

**Foliage of tree** -Spreading crown and a short bole.

**Soil Type** - Acid and Neutral

15 M

#### Uses

- Treat hypothyroidism
- Controls blood sugar
- Treatment of digestive system problems



Zoomed Image



Leaf type



Flower type



### T9 Jamun *Eugenia jambolama*

Indian sub continen

**Planted by** - Brig(Dr.) P.S.Siwach(Retd.)

**Year of Plantation** - 21st March 2012

**Family**- Myrtaceae



**Nature** - Evergreen

**Climate** - Tropical & Sub Tropical Region

**Leaf Texture** - Smooth, Leathery

**Leaf Shape & Colour** - Glossy

Dark Green,Long with Pointy tips

**Foliage Shape** - Round

**Soil Type** - Deep Loamy

**Tree Height** - 30 mts.

**Bark Diameter** - 40-100 cms

**Region** - India, Myanmar & Srilanka



#### Uses

- Jambolan fruits can be eaten raw or are made into jams.
- Fruits have great nutritional value.
- Jambolan is used in medicine for diabetes, swelling of the stomach, constipation, diarrhea & other conditions.
- Jamun fruit is used in treating common cold, cough & flu.
- Jamun fruit helps in regulating blood pressure.
- The tree bark can be used for decoration.

### T15 Maulsari *Minusops elengi*

South Asia

**Planted by** - Ms Krishna Poonia

**Year of Plantation** - 18-01-2017

**Family**- Sapotaceae (Mahua family)



Fruit type

**Nature** -Evergreen

**Climate** - Summer season

**Shape & Colour** -Bark: Thick bark and appears dark brown in color

**Foliage of tree** - Glossy, dark green leaves

**Soil Type** -Rich free draining loamy and sandy soil with PH of 5.5-8.5

**Height of tree**- 9-18 m (30-59 ft)

**Diameter of trunk** -1m (3ft 3in)

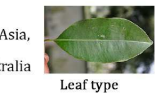
**Region** - Tropical forest in South Asia, Southeast Asia and northern Australia



Zoomed image



Flower type



Leaf type



#### Uses

- Treatment and maintenance of oral hygiene
- Rinsing mouth with water solution made with bakul helps in strengthening the teeth
- Prevents bad breath
- Keeps gums healthy





## Cleanliness Drive in Dehmi Kalan Jaipur



Cleanliness drive by our housekeeping staff



## LIQUID WASTE MANAGEMENT-INHOUSE- SEWAGE TREATMENT PLANT

MUJ is equipped with **4 STP** Plants with different capacity 1000 KLD, 350 KLD(two) and 150 KLD **IN TOTAL 1850 KLD.**

Sewage treatment removes contaminants from wastewater, which includes physical, chemical, and biological processes to remove these contaminants and produce environmentally safer treated water (it has been used for flushing and gardening). In normalcy are producing 1850KL treated water per day.

➤ [Production of recycle waste-water report \(click here\)](#)







## LIQUID WASTE MANAGEMENT-INHOUSE- SEWAGE TREATMENT PLANT

