Jute Geotextiles

A variety of Jute fabrics were developed for the purpose of specific applications as geotextiles. Some important application areas and products are given below.

- **Jute Geotextiles Application Areas :** Road construction, river bank protection, hill slope management, roadway and railway track side slope protection.
- **List of Jute Geotextiles Products:** Soil savers, DW plain cloth, Non-woven, Treated jute fabric, Vertical drains

Favourable Properties of JGT

- High moisture absorbing capacity.
- Good drapability.
- High initial tensile strength.
- Excellent frictional coefficient between jute & soil.
- Excellent integration with the soil.
- Can be tailor-made.
- Biodegradable and improves soil structure.
- Renewable resource and easily available.
- Economical.

1. Application of JGT

A. Application of Jute Geotextile in Roads

Name of the Project and location	Construction of highway embankment on soft marine soil using Jute Geotextile at Kakinada port – Andhra Pradesh
Objective	Reinforcement of the highway embankment with the help of Jute Geotextile by minimizing post- construction settlement, lateral spreading of fill material etc.
Properties of Jute Geotextile used	1. Weight : 750 GSM 2. Tensile strength : 20 kN / m 3. Pore size (O_{90}) : 250 micron 4. Type of JGT : Woven (Grey)
Results	No damage of the treated portion while the untreated road damaged severely by a cyclone.

Leveling in progress

Laying of Jute Geotextile

Finished Road after 7 years of construction

B. Application of Jute Geotextiles for Slope Protection

Name of the Project and location	Application of JGT for slope protection of flood embankment in Beluakhai**,** Bhubaneswar.
Objective	Stabilisation of slope by checking the slide of soil, debris and boulders during heavy rains and restoration of the vegetative cover destroyed due to mining activities.
Properties of Jute Geotextile used	1. Weight : 500 GSM 2. Strength (kN / metre) (MD x CD) : 10 x 7.5 3. Open area (%) : 50 4. Type of JGT : Open Weave
Results	Very good shape of slope retained and vegetation started.

River Embankment at Beluakhali, Bhubaneswar

Dressing of Slope &Laying of JGT

Growth of vegetation over stabilized slope after 1 year

C. Application of Jute Geotextiles for River Bank Protection

Name of the Project and location	Control of bank erosion naturally – a pilot project in Nayachara Island (West Bengal) on the River Hugli to protect the island from severe erosion of its western bank hugging the River Hugli.
Objective	To protect the island from severe erosion of its western bank hugging the River Hugli.
Properties of Jute Geotextile used	Type : Woven bitumen treated Weight : 850 GSM (grey) Breaking strength : 33.2 kN / m (warp way) : 28.2 kN / m (weft way) Pore size(O_{90}) : 150 micron
Results	River Embankment is still in good shape.

Eroded bank of Nayachara Island

JGT was laid on eroded bank of Nayachara Island

Performance of JGT on erosion control at Nayachara Island.
[Photograph was taken 11 years after completion of work.]

D. Application of Jute Geotextile in Road Construction

Name of the Project and location	Widening and strengthening of Munshirhat – Rajpur Road, West Bengal.	
Objective	Strengthening of the widened portion of the sub-grade on both sides of an existing district road with the use of JGT	
Properties of SubSoil	PROPERTIES OF SUB SOIL Type of soil : Organic Silty Clay (OL) Avg. Moisture content : 16.76 % Avg. LL : 48.73 % Avg. PL : 29.69 % Avg. PI : 19.04 Avg. O.M.C. : 19.14 % CBR : 3.55 %	
Properties of Jute Geotextile Used	1. Tensile strength : 20 kN / m 2. Pore size (O_{90}) : 300 micron 3. Type of JGT : Woven (Rot Resistanat)	
Results	Avg. soil CBR % (before laying JGT)	Improved soil CBR % (after laying JGT)
	3.55	6.0

Andulia – Boyratala Road Before JGT Application

Laying of JGT on road

Condition of JGT treated road after 18 months

Specificationof JGT

Construction	Double Warp Plain Weave for application in rural road	Double Warp Plain Weave for application in river bank	Open weave Jute Geotextiles (soil saver) for hill slope stabilisation)		
Width (cm)	≥ 200 cm*	≥ 200 cm*	≥ 122 cm		
Weight (gsm) at 20% MR	724 (-5%, +10%) (Untreated)	627 (-5%, +10%) (To be treated with suitable additive)	500 (-5%, +10%)	600 (-5%, +10%)	700 (-5%, +10%)
Ends X Picks / dm	≥ 94 X 39	≥ 85 X 32	≥ 6.5 X 4.5	≥ 8 X 7	≥ 8 X 8
Thickness (mm)	1.85 (± 10%)	1.70 (± 10%)	4.50 (± 10%)	5.25 (± 10%)	5.50 (± 10%)
Wide width Tensile strength (kN/m) MD XCD	≥ 25 X 25	≥ 20 X 20	≥ 6.5 X 6	≥ 12 X 6	≥ 14 X 7
Elongation at break (%) MD X CD	≤ 12 X 12	≤ 12 X 12	≤ 14 X 14	≤ 14 X 14	≤ 14 X 14
Puncture Resistance (kN)	0.500 (± 10%)	0.400 (± 10%)	X	X	X
Burst Strength (KPa)	3500 (± 10%)	3100 (± 10%)	X	X	X
Permittivity at 50 mm constant head (/s)	0.35 (± 10%)	0.35 (± 10%)	X	X	X
A.O.S. (Micron) O95	150 - 400	150 - 400	X	X	X
Open Area (%)	X	X	50 - 65	45 - 50	40 - 45
Water Holding Capacity (%) on dry weight	X	X	450 - 500	450 - 500	550 – 600

*** Width of the Woven JGT may be fixed as agreed between buyer and seller, subject to a lower limit of 100 cm.**

Tolerance limits have been calculated based on Standard Statistical Method.

Why JCI

- CPSE (Central Public Sector Enterprise) – one Government of India Organization, is trustworthy in commitment of deliveries, quality, correct pricing.
- Strong product specific vendor base across its PAN India network
- Registered in GeM
- Scope of PAN India JDP operation through opening of marketing offices in different states.
- Scope of varied range of R&D on products and handicraft items to bring forward new designs, styles in collaboration with various Govt. / Non Govt. enterprises , artisan clusters.
- Manufacturing of JDP items through empanelled MSMEs, WSHGs, Jute Mills and thus creating scope of generating livelihoods of rural artisans and improvement in Jute Economy.
- Increasing raw jute demand and thus jute cultivation also.