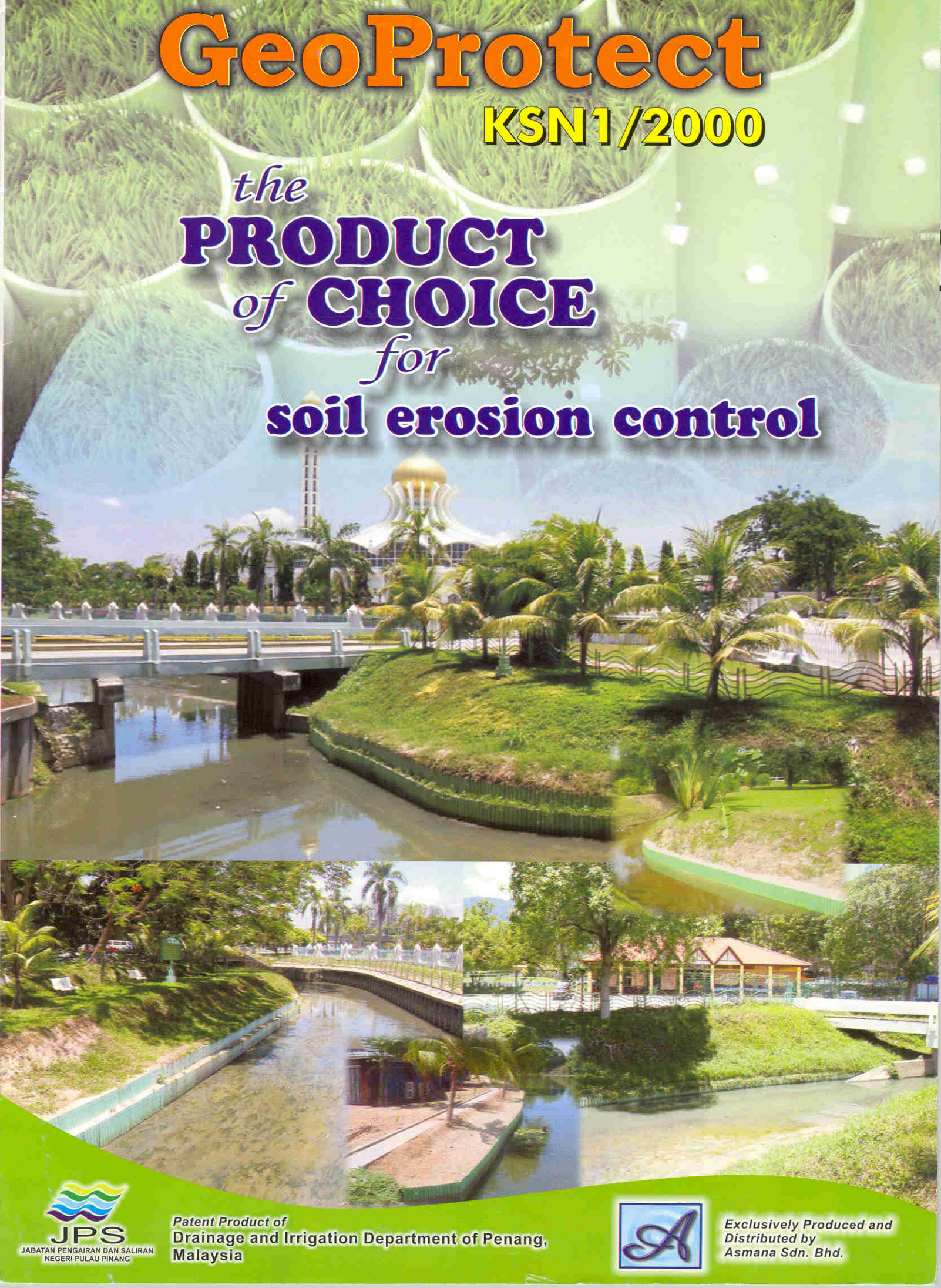


GeoProtect

KSN1/2000

the
PRODUCT
of CHOICE
for
soil erosion control



JABATAN PENGAIRAN DAN SALIRAN
NEGERI PULAU PINANG

Patent Product of
Drainage and Irrigation Department of Penang,
Malaysia



Exclusively Produced and
Distributed by
Asmana Sdn. Bhd.



Geoprotect KSN1/2000, the Interlocking Modular Block For Soil Erosion Control. Invented by Drainage and Irrigation Department Penang, Malaysia. Patented under the Malaysian Patent. This Patented product is commercialised by Asmana Sdn Bhd.

River banks erosion is a common and an occurring problem to our environment. With robust urban development especially in the catchments area where there is an increase in water flow rate and bed scouring resulting in river banks erosion.

Geo-technique experts and river engineering studies have found that the most effective measure to overcome this problem is by protecting the river toe.

Geoprotect KSN1/2000; an innovative, interlocking modular block for soil erosion control. It is invented to provide the solution to protect the river toe. The interlocking properties of Geoprotect is designed with a strong structural body to prevent soil erosion.

Geoprotect is basically a formation of block of hollow tube made by specially formulated plastic material. The hollow tubes are interlocked together to form a modular block and can be expanded to cover a wide area. The interlocking modular hollow tubes can be filled with granular materials such as river sand or other granular which is available at the site.

UNIQUE FEATURES of GEOPROTECT

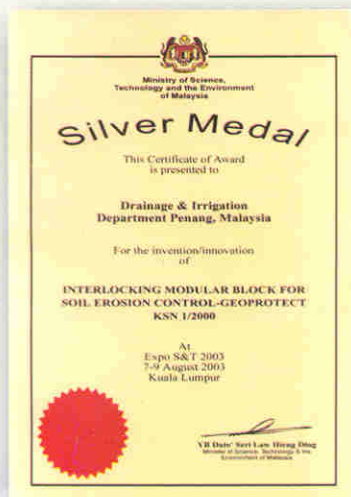
- **Environmental friendly**
- **Strong, durable and have a longlife span**
- **Maintenance free**
- **Cost effective**
- **Recyclable**
- **Fast and easy to install**



THE ACHIEVEMENT



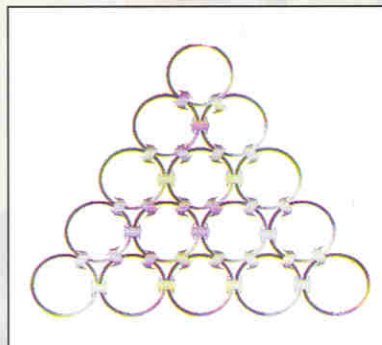
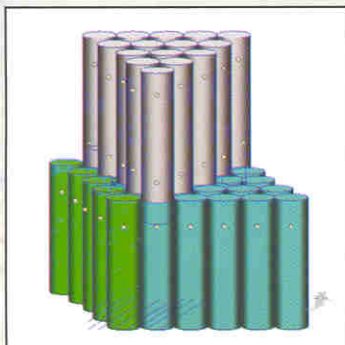
Gold Medal with appreciation from Jury (Geneva 2004)



Silver Medal (Science & Technology) Expo 2003 - K.L.



Champion (Innovation Award - State Government - Penang)



Technical Data

Physical Properties

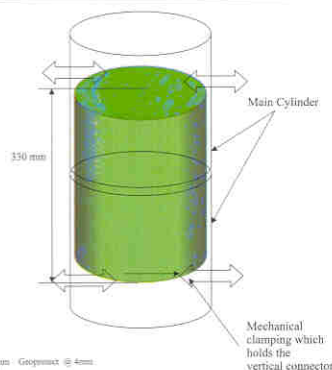
Item	Test Method	Values	Unit
Specific Gravity	ASTM D-792	1.46	-
Hardness	ASTM D-785	120	Rockwell
Water absorption	ASTM D-570	0.04 - 0.06	Mg/cm ² (psi)

Mechanical Properties

Item	Test Method	Values	Unit
Tesile strength	BS 2782-320A	500-550	Kg/cm ²
Shearing strength	ASTM D -732	400	Kg/cm ²
Compressive strength	ASTM D -695	660	Kg/cm ²
Bending strength	ASTM D -790	860	Kg/cm ²
Modulus of elasticity	ASTM D -747	2.8 X 10 ⁴	Kg/cm ²
Elongation at break	BS 2782-320A	50 - 150	%
Poisson's Ratio at 70F	-	2.7	-
Impact strength (Izod)	ASTM D -256	6	Kg/cm ²

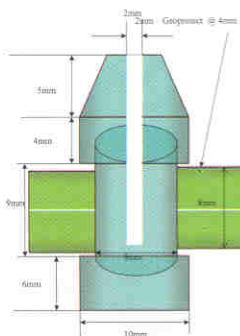
Vertical Connector

Material	UPVC MS628 : 1982
Diameter	OD 100 mm
Wall thickness	4 mm
length	330 mm
weight	0.65 kg
usage	To connect modules vertically



Mechanical Connector

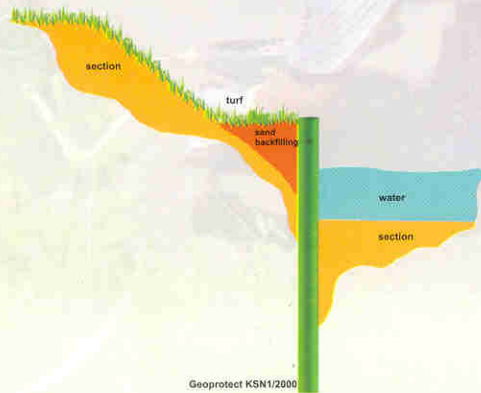
Material	UPVC / ABS
Diameter	Base : 10 mm Body : 8 mm
Overall length	24 mm
Usage	To connect the cylinders horizontally forming an interlocking body.



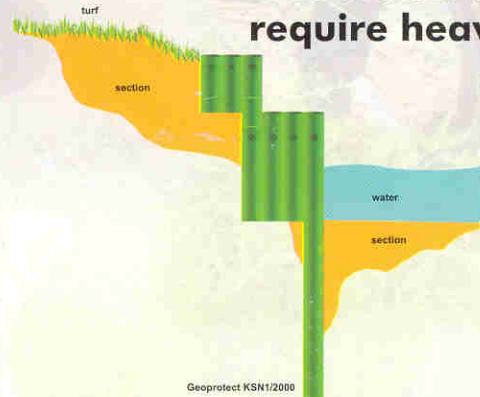
Geoprotect - The Comparison Table

Factors	Geoprotect	Gabion	Bakau Piles	Sheet Piles	L unit	Concrete piles
Operational Cost Reduction						
- Minimum supervisory cost	★		★			
- Minimum installation cost	★		★			
- Minimum maintenance cost	★			★	★	★
Time Saving						
- Short construction period	★		★			
Improvement in Work Quality						
- Quality Control	★			★	★	★
- Long life span	★			★	★	★
Customer Satisfactory						
- Aesthetic Value	★			★	★	★
- Strong & Stable	★					
Cost for 1 meter run (RM)	500.00	800.00	200.00	1,800.00	700.00	1,400.00
Other benefit						
- Environmental friendly method of installation	★		★			
-w/out using machineries						

Easy to install.



Geoprotect is easy yet fast to install and does not require heavy machines.



Enquiries

Kindly detach this portion and send to us.

Organisation: _____

Name: _____

Nature of Operation: _____

Address: _____ Postcode: _____

Tel: _____ Fax: _____

Email: _____

Action Required Please take the following action

Contact by / /

Would like to visit by / /

Set Appointment Date / / Place Time :

Post & Fax
Asmana Sdn. Bhd.
 64, Kedah Road, 10050 Penang.
 Tel: 04-2279294
 Fax: 04-2279295