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## **ECO MORTAR**

The Meceta's Eco Mortar is a mixture of Portland cement, sand and left-over material from the paper industries which are rich in cellulose (Paper Mulch). It quickly provides a stable surface which is resistant to erosive agents, especially against the rain and run-off water, wind and sun.

### **Uses and Characteristics.**



***Ecological Mortar- Vetiver- Creeping Forage Peanut (*Arachis pintoi*)  
Mountain Highway "Las Palmas" Km1+500 - Medellin. Antioquia***

The eco mortar is a superficial protective layer on the steep slopes of hillside surface, it regulates water infiltrations controlling and balancing the humidity of the area, it avoids; soil saturations, weight increases, soil loss and the alteration of the aeromechanic properties of the soil. It is used in combination with Vetiver Technology and some other suitable plants for the stabilization of steep road batter and river banks, control erosion and soil improvement in areas that have lost the organic content, by manmade or natural phenomena.

### Principal Characteristics are:

- Quick drying; it quickly provides a stable surface which is resistant to erosive agents, especially against the rainfall water, wind and sun.
- High adhesive capacity to all surfaces; particularly sandy soils, and in general, it amalgamates them, giving them superficial protection avoiding its displacement.
- Low density; for it does not increase the weight on the hillside.
- It is hygroscopic: It means that it absorbs and regulates the humidity in the interior of the material. Avoids soil saturation, increases weight and avoids the loss of internal friction.
- The ecological mortar immediately protects the damaged and vulnerable surface against the principal erosive agents: the rain and of run-off water, the wind and the sun light. When it integrates with the soil, it controls the dampness (water content), it improves the geo-mechanical properties and induces the consolidation.

It is environmentally friendly; it helps the regeneration of the ecosystem and promotes the return of Native Vegetation, which spontaneously starts to germinate over the mortar after the area is stabilized.

### SURFACE PREPARATION

The surface pre-treatment is minimal in the area. If there are some large and unstable rocks, they should be removed and placed in a safe position, It is not necessary to remove any native plants from the area.



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The terrain must be prepared with some superficial manual compaction and rows must be made in the hillside for the easiest application possible.

## PREPARATION AND INSTALLATION.

The mixture should be prepared in a similar way that concrete is made. When the mortar has optimal malleability, it is manually installed over the area, covering all the surfaces; meaning that all of the area should be covered with an approximated 2 cm thick layer. When the area is covered, it is immediately protected from erosive agents and the consolidation process begins.

The projects are completely being done with manual-labour and qualified staff is not required, so the workers are local to the area influenced by project, generating employment and given benefits for local communities. It also provides a sense of ownership of the project to the local community and they will look after it .

## TECHNICAL SPECIFICATIONS

Characteristics	Description
Color	Gray
Mixture time to dry	2 hours, After preparation.
Application temperature	5°C - 38°C
Minimum thickness	10 mm
Maximum thickness	30 mm
Resistane (f'c)	1150 kPA
Density	18,5 kN/m3
Absorption	22%
Adherence resistant	45 kPa

### - Application:

The manual-labour installation of the mortar must be with care and love, the aim is to get the mortar in perfect contact with the surface that is being treated. The use of concrete guns (pump) is not recommendable, this technique could allow air pockets between the mixture and the hillside surface which could become water traps and increase the instability of the site.

**“BIO-INGENIERIA PARA LA PROTECCION, RECUPERACION Y DESARROLLO DE LA MADRE TIERRA”**

**“BIO-ENGINEERING FOR THE PROTECTION, RECUPERATION AND DEVELOPMENT OF MOTHER NATURE”**