Vertical Soil Traps and Vetiver System For Slope Protection in Road Anillo Regional Santo Domingo Xenacoj, Guatemala.

Member:

Guatemala
Georeference

Guatemala
Diagnosis
Issue

Run off our major actor!
Hydraulic gradient
Challenge

1- Non-interrupted fill slope
2- No drainage structure
3- Rainy season
4- Compacting gradient
Challenge
Compacting gradient + Regolith
Brainstorm

✓ Roundtable
✓ Urgent due to rainy season
✓ Harmful: Pungent and sharp run-off
✓ Wide variety of solution: Befitting and innovative solution
Deliberate
Mode of action
Terracing process

Guatemala
Metodology
Methode

✓ Draw contour line: subtle unleveled, 6 m apart.
✓ Stick wooden poles into the ground until deep safe compacted zone. Mandatory.

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Methode

Attach geotextil to the wooden sticks rows.
Methode
Promote sediments bench forming
Methode
Planning Vetiver plants

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Methode
Maintenance

Guatemala
Conclusions

✓ This system has trapped as much as 9,700 m$^3$ in 110,000 m$^2$
✓ The system is befitting for such hostile conditions
✓ The principle of the solution was to slow down in each section the increasing hydraulic energy of run-off
✓ The success of the solution was the planning step
Recommendations

✓ Include drainage structures at initial design
✓ Avoid rainy season during installation process
✓ Increase bench forming structures density
Results

✓ Stable and vegetated surface
✓ Amount of soil has been trapped never was seen before
✓ Low cost solution for fill slope
✓ Landscape improvement
Mode of action

Vertical soil traps
SUCCESS CASE:

BÓVEDA MAGDALENA, ANILLO REGIONAL

Guatemala
SUCCESS CASE:

DEPÓSITO PALO HUECO, PLANTA SAN GABRIEL

Guatemala
Gallery
BÓVEDA MAGDALENA, ANILLO REGIONAL

Guatemala
BÓVEDA MAGDALENA, ANILLO REGIONAL

Guatemala
BÓVEDA MAGDALENA,
ANILLO REGIONAL

Guatemala

VETIVER TEC
Guatemala

VETIVER TEC
Guatemala
BÓVEDA MAGDALENA,
ANILLO REGIONAL

Guatemala

Guatemala
DEPÓSITO MAGDALENA, ANILLO REGIONAL

Guatemala

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DEPÓSITO MAGDALENA, ANILLO REGIONAL

Guatemala
DEPÓSITO PALO HUECO, SAN JUAN SACATEPÉQUEZ

Guatemala
DEPÓSITO PALO HUECO, SAN JUAN SACATEPÉQUEZ

Guatemala
Other Projects
Guatemala

Vetiver plant root system
Guatemala
Guatemala
Guatemala
Thanks for your attention.