

# ABOUT US

Prati Armati srl is a Company that developed an innovative green technology called PRATI ARMATI® that uses *deep rooting, perennial, non invasive, non GMO, locally native*, seeds of herbaceous plants, able to contrast both water and wind soil erosion and desertification, on:

- roadside, motorway and railway embankments
- riversides
- quarries, mines
- landfill sites and sites affected by heavy-metal pollution

From more than 15 years we work for public administrations and private companies like ANAS, AUTOSTRADE per L'ITALIA, and so on.

# WE CAN STOP EROSION

- on any lithotypes (both SOIL and ROCKS) difficult or impossible to cover using traditional techniques (*geocells, geonets, biomats, mulch, wood fiber bond matrix, plastic materials, topsoil, hydroseeding*) even if strongly contaminated by heavy metals or added with lime up to 5%
- at temperatures between - 40°C and +60°C
- with pH range between 4 and 10

## WITH THESE ADDITIONAL GEOTECHNICAL ADVANTAGES

- Increase of shear resistance and safety factor of soil
- Reduction of water infiltration into the ground
- Improvement of water removal from upper soil layers thanks to evapotranspiration

## *not only we can stop erosion ...* **BUT**

studies made by Universities and Research Organizations in geotechnical, geological, botanical, agronomic, energy fields, have demonstrated that this technology - *if compared to traditional anti-erosion technologies* - has an extraordinary potential in terms of technical, economic and environmental advantages, being:

1. A perennial anti-erosion solution
2. A zero-maintenance technique
3. Able to facilitate re-naturalization and ecological succession by incorporating any desired seed of flowers, shrubs or trees
4. Able to capture CO<sub>2</sub> up to 400% more than common grassy plants
5. Capable to reduce, with respect to traditional techniques:
  - *up to 100 times the weight of required materials*
  - *up to 10 times the energy requirements*
  - *up to 10 times polluting emissions (CO<sub>2</sub> CO NO<sub>x</sub> SO<sub>x</sub> particulate)*
  - *on-site working times and site-related risks*
  - *up to 50% of economical costs*

# EXAMPLES in any climate and litotype



# RESULTS



Altered tuff pyroclastites and fractured basalts (center Italy, Orvieto)



Silty sand (Motorway A3, Calabria, south Italy)



**Pliocenic over compacted clay of marine origin  
(center Italy, Motorway A1)**



**Perfectly clean ditches at the base of a PRATI ARMATI® installation  
(center Italy, Motorway A1)**



**Heterometric slope debris  
(north Italy, Alps, 1.400-1.700 meters above sea level)**



**Slightly cemented sandy limestone – calcarenite –  
(south Italy, Sicily Motorway)**



BEFORE



AFTER

Limestone quarry  
(center Italy, Spoleto)



BEFORE



AFTER

Granite and porphyry  
(Sardinia)



# Some R&D results

by Politecnico di Milano

## POLITECNICO DI MILANO:

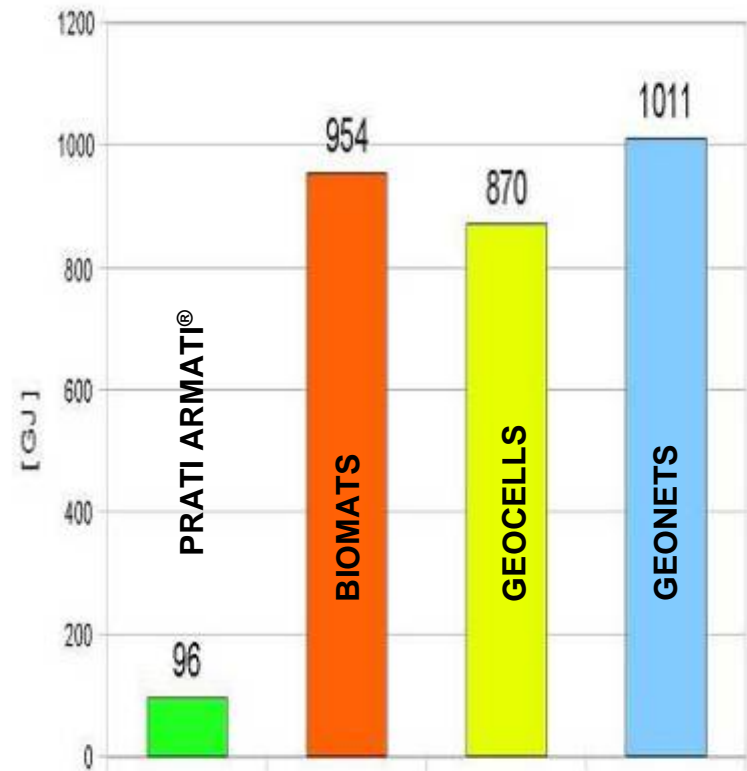
### MOTORWAY SLOPE

energy requirements (expressed in GJ) and pollution emitted (CO<sub>2</sub>, CO, NO<sub>x</sub>, SO<sub>x</sub> and particulate), for 1ha of slope, calculated according to four solutions:

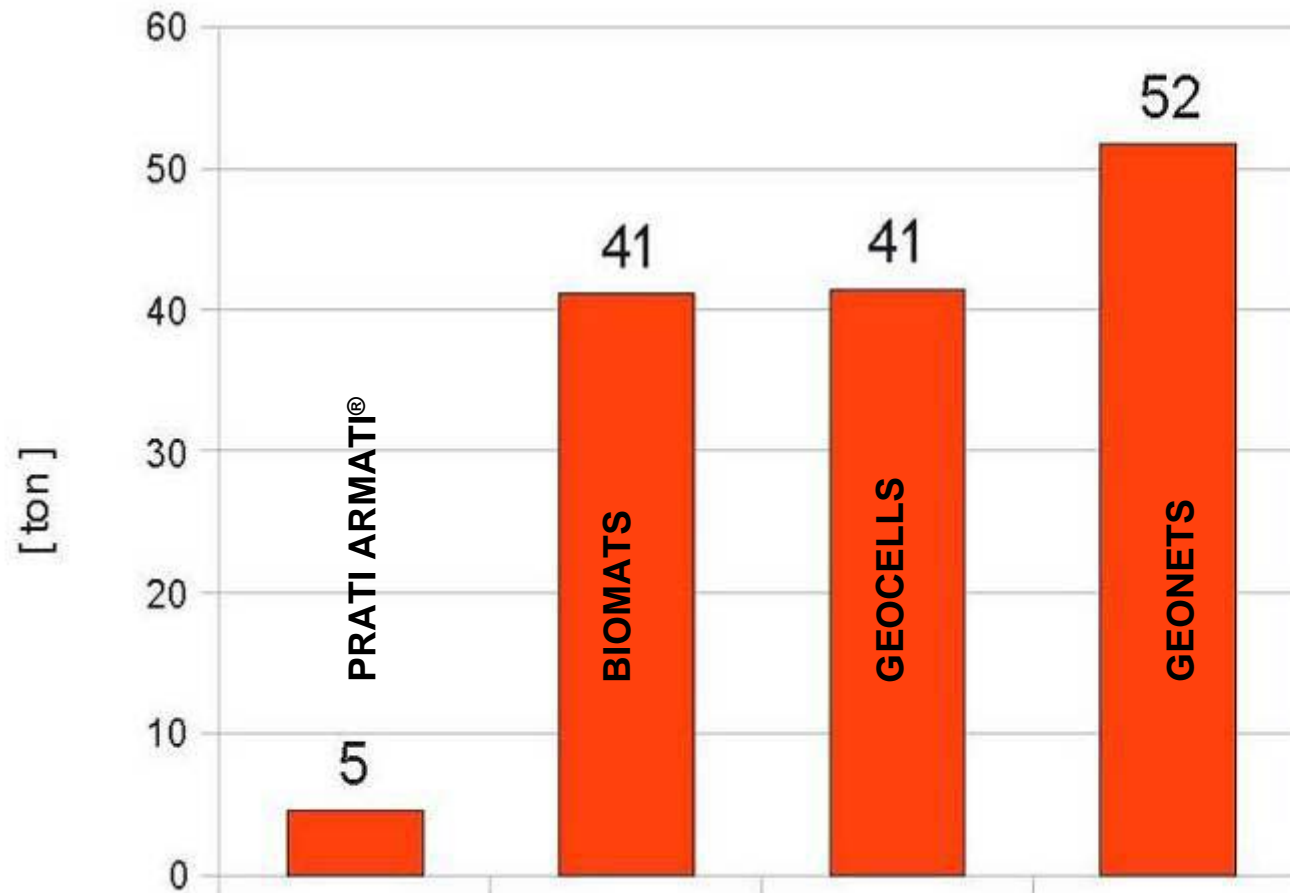
- solution with geonets;
- solution with geocells;
- solution with biomats;
- solution with deep rooting plants (PRATI ARMATI®)

1.000 GJ correspond to the energy contained in 24t of oil

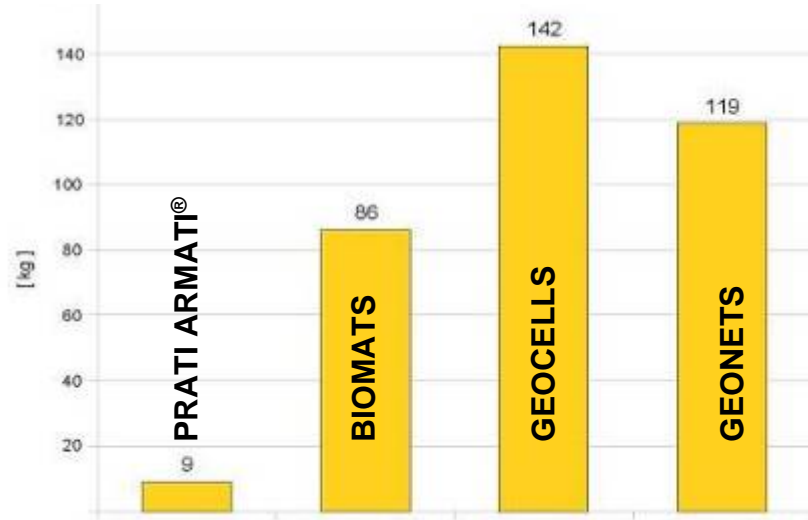
COMPARISON OF ENERGY REQUIREMENTS OF DIFFERENT SOLUTIONS



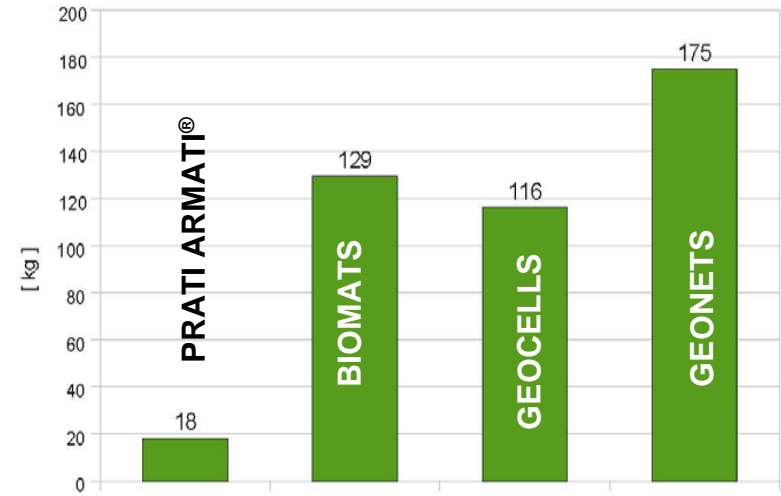
## COMPARISON OF CO<sub>2</sub> EMISSIONS OF DIFFERENT SOLUTIONS



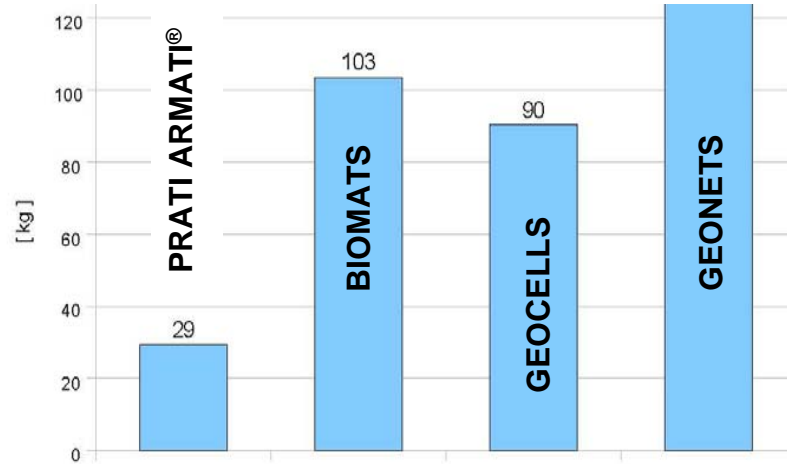
### COMPARISON OF CO EMISSIONS



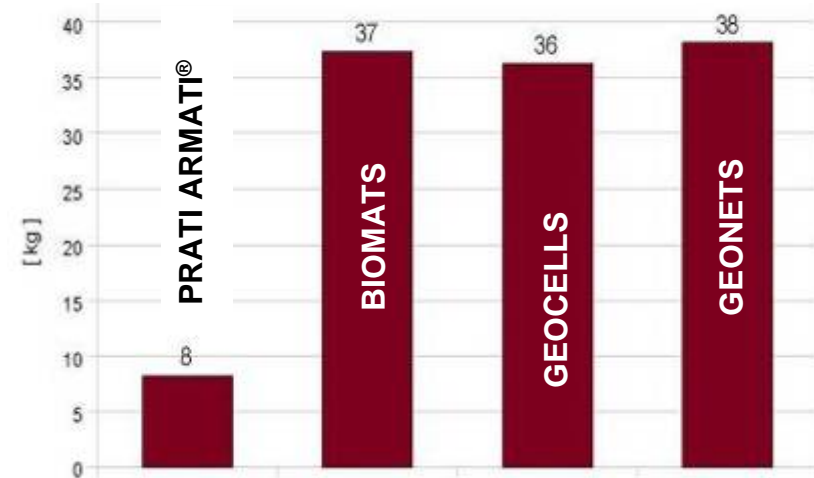
### COMPARISON OF NO<sub>x</sub> EMISSIONS



### COMPARISON OF SO<sub>x</sub> EMISSIONS



### COMPARISON OF PARTICULATE EMISSIONS



# PRATI ARMATI® AND KYOTO PROTOCOL

PRATI ARMATI® may store *up to* 400% more carbon dioxide (CO<sub>2</sub>) than most common grassy plants used in traditional applications, thus contributing to the implementation of Kyoto Protocol

KIND OF GROUNDCOVER	TONS OF CO <sub>2</sub> ABSORBED PER HECTARE EACH YEAR (t/ha/year)
Temperate deciduous forest (plants C3)	20
Temperate grassland (plants C3)	8
<i>Annual</i> corn plantation (plants C4):	41,5
<i>Perennial</i> PRATI ARMATI® anti-erosion groundcover (plants C4)	up to 40

CO<sub>2</sub> absorbing capability of different groundcovers measured in tons per hectare per year

PRATI  
ARMATI®

# Thanks for your



# attention

(a bouquet of flowers in a quarry)