TERRASYSTEM®

Soil Stabilization

Ecological, economical, environmentally friendly,
resources and CO2 saving

TERRA-3000® is effectively improving the compressibility of cohesive soils sustainable. Substantial reduction of water absorption is increasing the load capacity, frost resistance and abrasion resistance permanently.

Roads and squares, constructed with TERRA-3000®, can be used even without surface layer and can be released for traffic immediately after termination of the construction works.

The effect of TERRA-3000® is based on many years of experience of the TERRASYSTEM® Nano-Technology. The method is proven in many applications worldwide and the product is 100% ecological and environmentally friendly.

TERRA-3000®, is a very unique and green environmentally product that has been in business since over 30 years. We are the inventor and producer of this product, and believe that it would provide the people tremendous benefits such as:

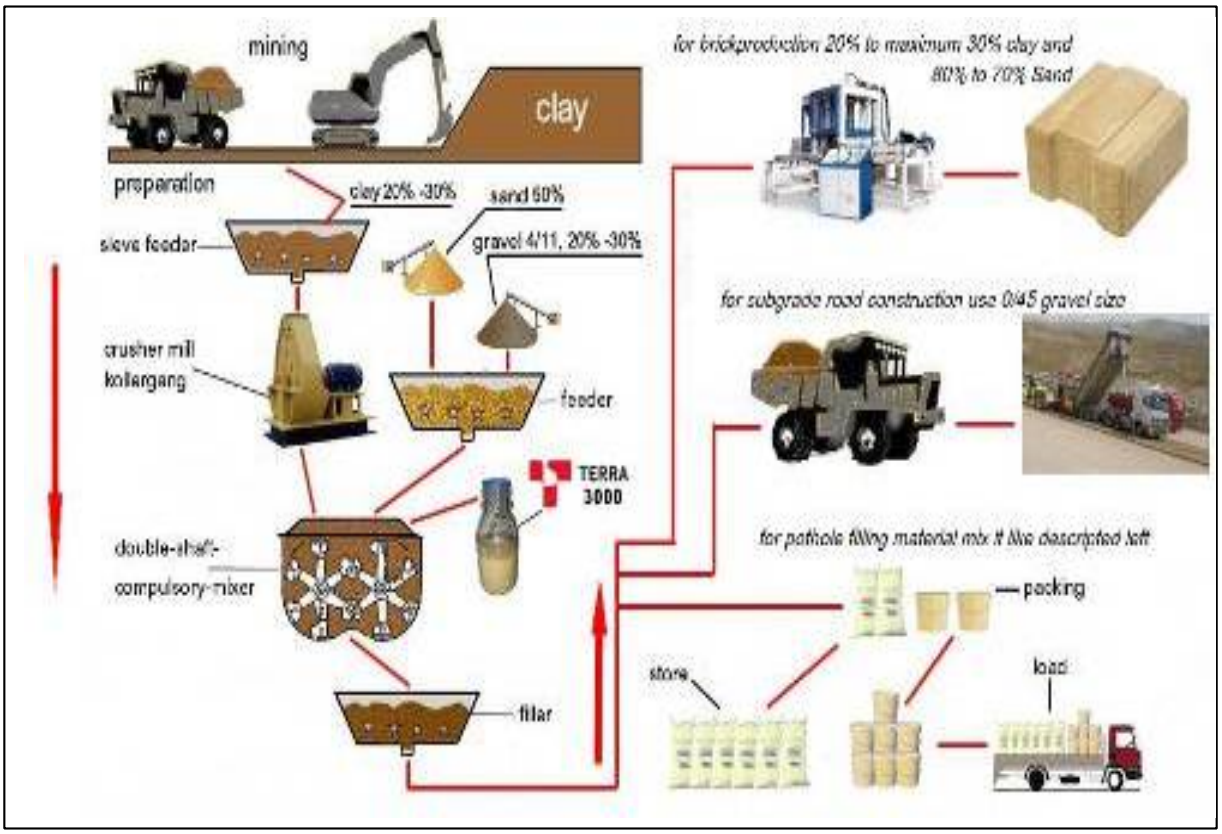
- Safer roads due to no potholes, thus preventing road accident deaths by up to 40%
- Renovate existing roads by making them water proof and thus prevent them from being washed away with heavy rain and floods
- New water proof roads connecting all, which can be built at much faster speeds than your current methodology

- Prevention of deaths, commodity damages and infrastructural damages from floods, via solid flood embankments, dams and dyke's solutions
- Renovate existing railroad embankments and make them water proof thus preventing rail accidents due to heavy rain and flooding
- Water resistant bricks that can prevent water from seeping into Homes in villages
- Prevent toxic dump areas from leaking toxic materials by sealing off toxic dumps with a guaranteed water proof covering
- Build airports and runways on solid waterproof foundation with **TERRA-3000®**

All of these applications are based out of the unique nanotechnology provided by **TERRA- 3000®.**

We would welcome the opportunity to work with your ministry as well as a nominated contractor, and prove these benefits for the people.

Austrian quality with the highest levels of safety and security is the promise we offer.



TERRA POTHOLE (TP)

MANAGEMENT

Road traffic accidents (RTA) have silently become an epidemic .
Inadequate attention to road safety is adversely affecting the state's socio-economic health.

Whilst Alcohol does account to a certain number of deaths, it is an absolutely alarming trend, which deserves immediate attention.

One of the low hanging fruits to ensure that roads are safe to drive upon, is to ensure that there is an efficient functional pothole solution. This would imply that there should be no potholes on the surface of the roads, thus preventing unnecessary emergency braking, sudden swerving movements, or losing control of the car.

With the TERRA POTHOLE Solution, we can guarantee you a functional self-sustaining water proof solution for potholes, with the following benefits:

- Very simple easy to use solution with no special scientific or technical „know-how" required
- Very fast implementation, with no curing period required
- Waterproof solution, which would not be managed with heavy rains or heavy traffic loads
- Cost effective solution which can be easily standardized nationally for your country.

TERRA ROAD (TR)

RENOVATING EXISTING ROADS AND BUILDING NEW ROADS & HIGHWAYS

UPGRADING OF IN-SITU SOILS FOR ANY KIND 0F ROAD- AND EARTHWORK.

The scarcity and occasional exhaustion of Conventional construction materials make it necessary to use in increasing quantities in-situ soil in road construction and road maintenance and in any other earthwork to protect nature and environment, save the ending resources of gravel and crushed rock and avoid waste of valuable materials.

The biggest challenges in road construction and renovation lies in the speed at which work is carried out, an average of 300m2 a day, which is too slow to create a positive impact in preventing road deaths.

With the **TERRA**SYSTEM® and **TERRA-3000®** your peoples would have the following advantages:

- Reduction in existing construction costs, by at least 30%.
- Guaranteed waterproofing of Subbase, therefore increasing life of roads, by at least 300%.
- Construction of at least 6000m2 of subbase a day, when applied with TERRA - Pre-Mixing System
- No curing period required
- Reduction in maintenance costs, thereby giving a realistic chance to clear maintenance backlog and really have a positive impact in lowering road accident related deaths caused due to bad roads .

TERRA DAM (TD)

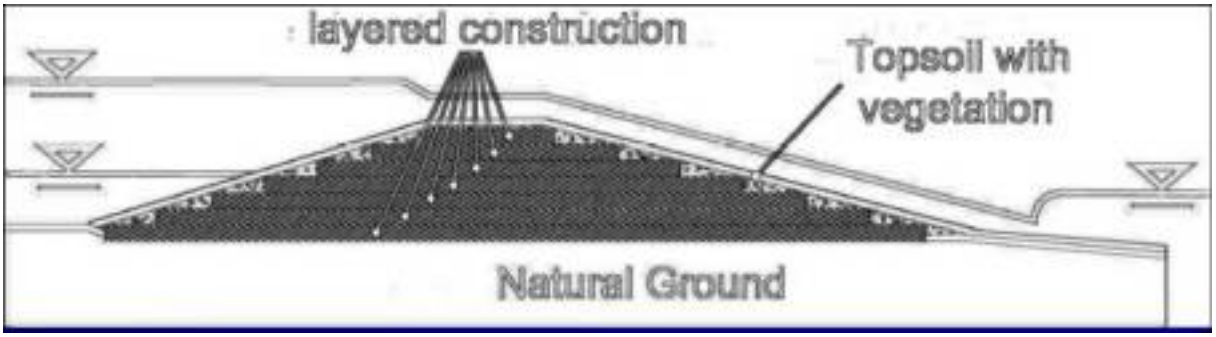
Flood embankments, Dykes and Dams

Seasonal floods belong to a natural chains of events alongside rivers, however Heavy rainfall events can constitute flood waves. During such a flood catastrophe, not only human lives are at risk, but also significant loss of commercial and infrastructural values are at high risk. Remote villages are isolated and thus children's lives are also at risk. All this has serious political ramifications if not considered in advance.

By using the **TERRA**SYSTEM® one cannot not only build cost effective flood embankments, dams and dykes, but also guaranteed long lasting solutions that will have a positive impact on saving lives during such catastrophic events.

Flood dams or dikes are usually made of a sand core, which is then covered with a one to two-meter-thick layer of cohesive materials such as clay/loam. Grass plantations prevent erosion, and increase the stability of the construction.

The soil stabilization with **TERRA-3000®** improves the fitting ability and compressibility of cohesive clay loam soils.
This guarantees a long-term sustainability, durability, and stability whilst being water resistance.



Layered Construction with **TERRA-3000®**

Conclusion:

Dams and dykes which are attached or built with **TERRA-3000®** resisting floods better! Treatment with **TERRA-3000®** and the high compaction ensures a higher relative impermeability of the earthwork.

A rapid softening is delayed or prevented. The dams and dykes are stable and withstand the flood for longer period of time.
An enormous environmental damage in your country local economy can be prevented, as well as countless inhabitants lives can be saved!

TERRA RAILWAY (TR)

EMBANKMENT

The **TERRA**SYSTEM® allows the upgrading of any existing railway embankment and tackles the problems where they come from – the soil beneath the ballast, which tends to soften with time, and is integrating into the ballast making the once stable material unstable.

This leads to inevitable repairs replacing the now useless ballast with new ballast and also having to dispose of the old ballast creating vast amounts of disposable material.

The ability of the **TERRA**SYSTEM® to treat the time and use-worn ballast saves not only time and money but also the environment by not having the need for vast amounts of disposable material.

Ballast removed from railroads for reasons of instability can be treated in-plant and stockpiled for use at a later date. Treated material remains treated and can be used at any time.
In a green field site situation treating the in-situ soils with the T**ERRA**SYSTEM® will eliminate any problems in the future.

SUMMARY:

- TREATED MATERIAL REMAINS TREATED AND IMPROVES WITH USE
- PROVEN OVER MANY YEARS IN DIFFERENT PROJECTS
  SAVES ON CONSTRUCTION TIME AND COSTS
- LESS NEED FOR QUARRIED MATERIAL
- OTHERWISE USELESS MATERIAL CAN BE USED NOT DUMPED
- CAN BE STOCKPILED AND RE-USED AT A LATER DATE
- CONTRIBUTES TOWARDS ENVIRONMENTAL FRIENDLY
  CONSTRUCTION

Main Line Hungary - Austria

This difficult section on the main railway line Hungary - Austria was treated with **TERRA-3000®** in order to increase the bearing capacity to values required for higher speed.

An increase of the E2-Module in the range of 3 to 10 times compared to the existing figures in not unusual.

TERRA BRICKS (TB)

Pressed and unburned water-resistant bricks

The **TERRA**SYSTEM® replaces burned bricks and mortar by the use of **TERRA-3000®** manufactured bricks, which are bonded to each other with the same soil material diluted with water and liquid **TERRA-3000®** catalyst.

The **TERRA**SYSTEM® is a unique technology which allows relatively easy, upcoming ocally available soil, enhance in an acceptable raw material for the brick production.

The water sensitivity of such unburned bricks is brought under control and even up to the complete impermeability (by adding missing grain fractions - clay or sand).

Benefits of TERRA BRICKS

- water resistant, no capillary action, remains dimensionally stable in case of moisture,
- high breaking strength of the bricks > 12N/mm² = 12 MPA
- energy saving, no burning, no time-consuming and costly transportation, locally available clayey loam soil is the main raw material
- Excellent thermal features, excellent thermal capacity, almost twice efficient as burned adobe bricks,
- Environment friendly, **TERRA**SYSTEM® acts as a catalyst, very low application rate, environmentally certified,
- simple processing, also possible by unskilled staff

Energy saving:

- no expensive and complicated burning, brick is pressed hydraulically or mechanically, no high energy costs, no energy consumption through long transports.

Material Savings:

- no mortar or cement required to be used for binding bricks in a wall
- Specially formed profile bricks using an interlocking system fixed by diluting with the same catalyst material and water for bonding.

TERRA SEALING (TS)

TOXIC DISPOSAL & DUMP SOLUTIONS
SEEPAGE CONTROL, IMPERMEABILITY OF WATER PONDS, IRRIGATION CHANNELS AND LANDFILL AREAS

The **TERRA**SYSTEM® has been used to build several disposal areas after it has shown excellent performance in achieving impermeability with in situ soil.

A typical characteristic of in-situ soils is that they allow not only seepage of water but also other liquids. The former leads to the loss of water, a particularly undesired side effect in irrigation projects, the latter very likely results in heavy pollution of the ground water.
In conventional constructions, seepage has to be prevented by methods, which often work with artificial, dense coatings or linings. The solutions offered range from plastic linings to asphalt coatings, from concrete pavements to soil admixtures with certain types of minerals (Bentonites, Montmorillonites) which allow to 'tighten' a soil by their enormous swelling effect. These methods are not sustainable, they are expensive and not environmental friendly.

TERRASYSTEM® allows upgrading any soil by a simple treatment with TERRA- additives.

This is significant for any type of construction dependent on it:

- soil embankments of roads and railroads will not be softened and deformed by meteor water;
- water basins, artificial lakes, irrigation channels, dikes and dams can be prevented in losing too much water by seepage.

Since the **TERRA**SYSTEM® does not harm the environment, there is no undesired side effect on water involved;

- landfill areas require dense, impermeable layers to prevent the passing of effluents from the stocked waste material into the ground water, they can however also be covered with treated soil to avoid the seeping-in of meteor water from the top.

TERRA AIRPORTS (TA)

When it comes to constructing airports, a significant amount of money is spent on stabilizing the foundation of the main airport buildings, all airport side roads, including the take-off and landing runways.

By using **TERRA-3000®** one can build a solid foundation for the entire airport areal ensuring that no damages are made in the sub-base which would then result in expensive aintenance works.

All the foundation area of the main building, airport side roads as well as runways would have a water resistant sub-base at a very cost effective price and with a very high speed of construction.

The following pictures shows the areas at an airport

which can be stabilized with **TERRA-3000®**