



greeneng
Green Engineering

INNOVATION
Construction & Insulation & Arts



**PRELIMINARY PROJECT PRESENTATION ON
THE USE OF THE MATERIAL WITH CLAY
ORIGIN, WHICH WE DEVELOPED AS A RESULT
OF OUR R&D WORKS, DOESN'T REQUIRE
COOKING AND SHOW CERAMIC PROPERTIES
WHEN CURED AS AN ALTERNATIVE CERAMIC
RAW MATERIAL**





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MAIN PROBLEM

**ECOLOGICAL REFRACTION CAUSED BY INDUSTRIAL POLLUTION
CAUSED BY RAPIDLY INCREASING CONSUMPTION ACCORDING
TO THE INCREASING WORLD POPULATION**

THE OUTPUT OF THE PROBLEM

With the reform and the Renaissance movements, the change in the perspective of humanity towards science, the development of science with giant steps, in parallel with the control of epidemics, the developments in health, hygiene, food processing and logistics have caused an extraordinary increase in the world population in a very short time. Accordingly, with the industrial revolution, the processing of coal and petroleum with modern techniques, the variety of practical and cheap raw materials required by the industry quickly came to the market, and they responded to the raw material needs of the developing industry economically and quickly. This rapidly developing process has led to the rapid abandonment of old raw materials without a pollution story in some sectors. One of these raw materials is Clay. Clay, the difficulty of the production stages, the production requiring skilled labor, the necessity of baking, etc. It has been abandoned in many industries for reasons and has been replaced by petroleum, plastic, synthetic raw materials, which leave behind pollution stories that are very difficult to remove. It has been understood that this is unsustainable with the emergence of environmental problems as the first threat to the civilization we create.

CONNECTED PROBLEMS

"A shameful 50-year-old pollution story within a civilization story of tens of thousands of years ..."



UNPREVENTABLE, PERMANENT ENVIRONMENTAL POLLUTION

Too much profit in a short time +
Unconscious overconsumption +
Uncontrolled industrial production = rapidly deteriorating ecology



INCREASED ENERGY NEEDS OF THE INDUSTRY IN PARALLEL TO THE RAPIDLY INCREASING PRODUCTION

40% of the carbon emission is caused by the flue gases released into the atmosphere while energy is obtained.



PARADOX

Excessive energy need +
Carbon emission to produce energy +
Disrupted ecology = The civilization we created poses a threat to itself ...



POLLUTION + CARBON EMISSION = CLIMATE CHANGE

The bankruptcy of the development story

FOCUSING ON SOLUTION



WE ARE VERY CREATIVE BUT VERY
SMART

WE CANNOT BE TALKED ...

Are the solutions we found rational ..?

Not enough ...

The result: an ecology that cannot renew
itself



WE MUST REDUCE CARBON
EMISSION QUICKLY

Carbon emissions have exceeded the
limits that nature can compensate for.

In parallel with this, global
temperature values have increased by
0.90 degrees in the last hundred years.
The critical threshold is 1.5 degrees and
the rate of increase continues
exponentially.



A NEW PERSPECTIVE TO OLD
SOLUTIONS WITH INNOVATION

Researching the potential of clay,
which is already a very important
industrial material, with today's
advanced research techniques can
contribute to the solution of the
problem.

FOCUSING ON SOLUTION



NEW SOLUTIONS REQUIRED IN
HIGH ENERGY CONSUMING
INDUSTRIES

Metallurgy, Energy,
Cement and Ceramic
production sectors are the
most energy consuming
sectors.



AN EXTRAORDINARY AND
REVOLUTIONARY SOLUTION

Using a new material that does
not require cooking in the
ceramic industry may solve some
of the problem ...



IT MAY SOUND
INCREDIBLE...

The new material, which we
have developed as a result of
our long R&D studies, is a
candidate to be an alternative
raw material in the ceramics
industry as well as its other
extraordinary features.



RESULT: A COMPLETE
SUCCESS

It has been observed that
the products we have
developed will play an
important role in solving
the problem ...



THE NONPOROUS FORM OF OUR MATERIAL SHOWS CERAMIC PROPERTIES WITHOUT COOKING

Our material, which we call GreCer and consists of Clay + Natural pozzolan, shows ceramic properties by curing under atmospheric conditions without the need for heat. Moreover, with this feature, many productions that cannot be made with the ceramic technique due to the high temperature have become possible with this new technique.

COST ELEMENTS THAT CAUSE PROBLEMS IN CERAMIC PRODUCTION

One of the biggest costs in ceramic production; It means that the product is handled many times, waiting for a long time for it to dry. Large spaces are required for this process.

Then the product must be cooked using high cost energy. For this, very high energy consuming high temperature furnaces are used.

In artistic, decorative and kitchen type productions, there is a need for re-workmanship during the coloring and glazing after cooking.

After this stage, the product produced must be re-ordered in ovens and re-fired using high-cost energy.



carbon
neutral



carbon
neutral



carbon
neutral



GREENG INNOVATION SOLUTIONS

GENERAL FEATURES OF THE MATERIAL WE DEVELOP

Nonporous Clay + Natural Pozzolan(GreCer)

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Nonporous Clay + Natural Pozzolan

+ It is a completely ecological and natural material. It does not cause any harm to the environment during the production and application stages. It does not cause environmental pollution. It does not smell. The carbon footprint is almost zero.

+ Petroleum is indestructible and non-toxic like synthetic materials. When it is turned into waste, it mixes with nature and becomes a part of nature again.

It is an A1 class incombustible material. It can withstand high temperatures without losing its physical properties.

+ Its raw material is extremely economical. It is available in unlimited quantities all over the world. It requires an extremely easy process to obtain.

+ It does not require oven, temperature, autoclave or technological equipment in its production. It is mixed and applied in a simple way, it hardens automatically in atmospheric conditions for 2 - 4 hours in hot weather and 12 - 14 hours in the coldest weather.

+ Allows for on-site application. It allows the material to be mixed directly where it will be used, pouring it into molds with the desired properties, spreading it on the floor, spraying, and applying its special forms with brush, trowel, spatula and similar tools.





Nonporous Clay + Natural Pozzolan

- + In terms of density,
With the additives mixed into it by the user, it can be adjusted by the user from 1600 kg / M3 to 2500 kg / M3 depending on demand.
- + In terms of physical resistance;
Depending on the density of the material to be obtained, it is possible to provide a physical resistance from 15 MPascals to 60 MPascals.
- + It is not affected by water but breathes. Humidity and air permeability coefficient can be adjusted by the user as desired.
- + It does not stick to the mold, to release it from the mold, such as wax, release agent etc. it does not need substances.
- + Can be colored in any desired color with natural color pigments. It carries this color in its structure forever.
- + It is possible to use several different densities and forms in the same production stages.



NEW AREAS OF USE FOR OUR MATERIAL AN IMPORTANT FEATURE TO TURN ON

+ Another feature of the material that we think is important is that it shows different physical properties during hardening and final hardening stages. In the first hardening stage, which can be removed from the mold, it can be processed, shaped and brought to the desired dimensions with simple tools and machines or with technological machines such as lathe. This can be done easily in the first few days. However, after a few days, the material reaches a hardness that cannot be processed. After about 10 days, it reaches its final and constant hardness.

After this stage, it transforms into a substance with very high physical strength, whose properties are determined during production.

Various products can be produced by processing parts that have been turned into bars in various thicknesses using the material, and shaped with simple molds, just like processing metal materials by connecting to CNC machines.

This feature can create a new option for the production of some machine and tool parts more economically by using our material instead of gray cast parts in many areas in the industry.



GREENG INNOVATION SOLUTIONS
**USING OUR MATERIAL AS AN ALTERNATIVE IN
THE CERAMICS INDUSTRY**

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ADVANTAGES OF NO NEEDING COOKING PROCESS

In order for our material to harden and show ceramic properties, there is no need for heat treatment or cooking

Hardening takes place in atmospheric environment, depending on the season and temperature.

It takes place between 2 hours and 1 day.

The high temperature of 1000 degrees during firing prevents the material from curing together with the mold in classical ceramic production, and then the material is removed from the mold. With our material eliminating this process, molds made of all kinds of materials, including plastic molds, can be used in all production stages. This feature brings new and revolutionary advantages for production.

Since it does not require cooking, it can carry various materials such as fiber, fiber, fabric, straw, pike, natural materials, supporting skeletons and constructions in its structure.

The self-hardening of our material without the need for cooking brings with it many advantages that cannot be applied in ceramics.

To give an example: Today, with the development of CNC-based technologies, very sensitive plastic molds can be made. In this way, new production techniques can be developed from bowls, giant flowerpots, electrical armatures to some machine parts by using special multi-molds in the form of our material used for casting.

Currently, the material is used by us in the production of decoration products. You can browse our website www.mitosdeco.com to get ideas.

"With our material, even in the most remote places where there is no electricity, various products and building materials can be produced in accordance with today's building materials standards using simple molds and handcrafts without using any technological equipment.



USAGE IN THE CERAMIC INDUSTRY

By making small changes in the content of our material, it can be turned into vacuum press sludge, and all products such as blocks, perforated bricks and similar products can be produced in a much more complex shape and large size with the advantages of not needing cooking.

By making small changes in its content, it can be used by transforming into forms such as flexible and hard mud, potter wheel mud, liquid casting mud to shape it by hand just like ceramic. Additions, retouching and corrections can be made to the products obtained before they harden.

Its paste can be colored with the addition of paint, and colored coating and pattern processes can be made with special water-based resins.



carbon
neutral



carbon
neutral



carbon
neutral

ADVANTAGES TO THE CERAMICS INDUSTRY



EXTRAORDINARY FEATURE OF OUR MATERIAL: Ability to form a fiber-free form by applying 1 mm to the surface with a brush.



It has been revealed in our preliminary studies that it can achieve much more extreme physical features if it is adapted to the ceramic industry with scientific techniques.

All the products you will see in the pictures and more are made with the material we have developed.



ADVANTAGES TO THE CERAMICS INDUSTRY

ADVANTAGE OF STOP COOKING PROCESS

As mentioned in the content, the high temperature during cooking prevents the material from curing together with the mold in classical ceramic production and then the material is removed from the mold. With our material eliminating this process, molds made of all kinds of materials, including plastic molds, can be used in all production stages. This feature brings new and revolutionary advantages for production. The ceramic bowl you see in the picture is produced with a simple plastic mold and with a very simple method and extremely economically. An unlimited number of products can be produced in desired forms and colors with this technique.



ADVANTAGES TO THE CERAMICS INDUSTRY



In the picture, examples of decorative wall covering bricks with rock wool plate applied with the same technique are seen. Another advantage of this production technique is; It is the opportunity to produce in desired dimensions without size limitation and physical deterioration. In the classical ceramic technique, production cannot be made outside of certain dimensions due to cooking and other workmanship.



ADVANTAGES TO THE CERAMICS INDUSTRY

The Clay Plate seen in photo is 100 x 160 cm in size and was produced without firing. It is resistant to water, all kinds of natural conditions and has an eternal life. As an extra feature, the "rock wool plate" has been molded together during production and combined to become a single product for this plate to have an insulation feature. This type of application is not possible in classical ceramic production.



ADVANTAGES TO THE CERAMICS INDUSTRY

The decorative facing bricks pictured are a good example of a revolutionary product that can be produced without baking. With a simple application during the production phase, "rock wool plates measured in the same dimensions" were added to the ceramic mud and cured together, they became a single product with excellent insulation properties, not affected by water and natural conditions, and with an eternal life. Currently, there is no technique on the market that can produce this product economically and sustainably.



ADVANTAGES TO THE CERAMICS INDUSTRY



In the picture, examples of decorative wall covering bricks with the same technique applied as an alternative to mineral heat insulation plate are seen. Mineral heat insulation plates are a good alternative in insulation with their endless physical and chemical resistance.



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ADVANTAGES TO THE CERAMICS INDUSTRY

The picture shows examples of stone wool plate with the same technique and decorative wall covering bricks with an alternative mineral thermal insulation plate. Another advantage of this production technique is; It is the opportunity to produce without physical deterioration with much less product thickness. In the classical ceramic technique, production cannot be made under a certain thickness due to cooking and other workmanship.



WHAT CAN BE DONE WITH OUR MATERIAL



Without limitation of size; Plates with any appearance and color such as stone, marble, designed texture, shape ...

In addition to all the explanations, almost all kinds of products produced with the raw materials and techniques used in the ceramic technique can be produced with our material. A small adaptation study is sufficient for this. All the products you will see in the picture and other pictures are high quality products made with our material, technically, physically and visually.



WHAT CAN BE DONE WITH OUR MATERIAL

Decorative wall covering bricks in the desired color, shape, and fineness ...

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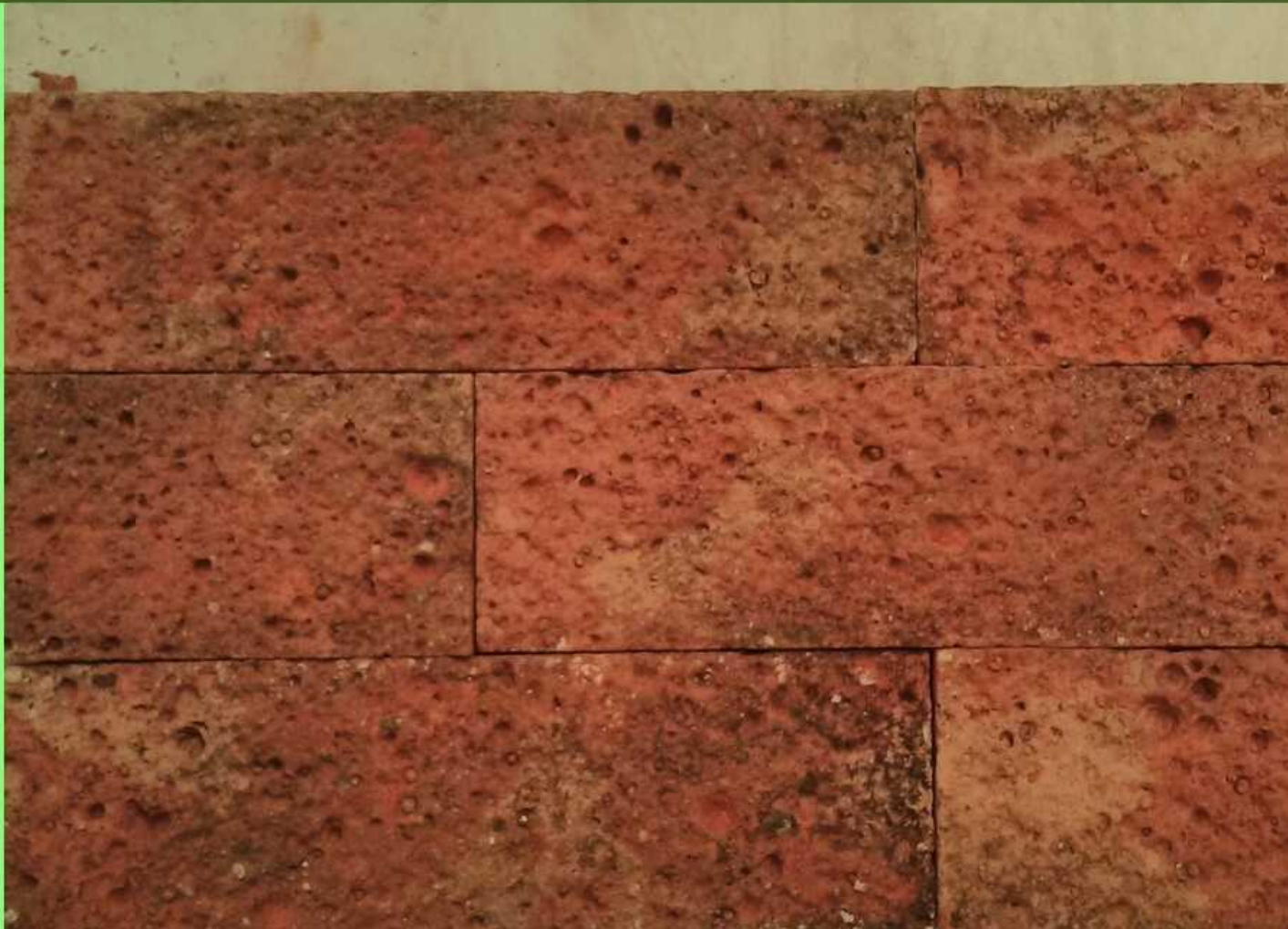
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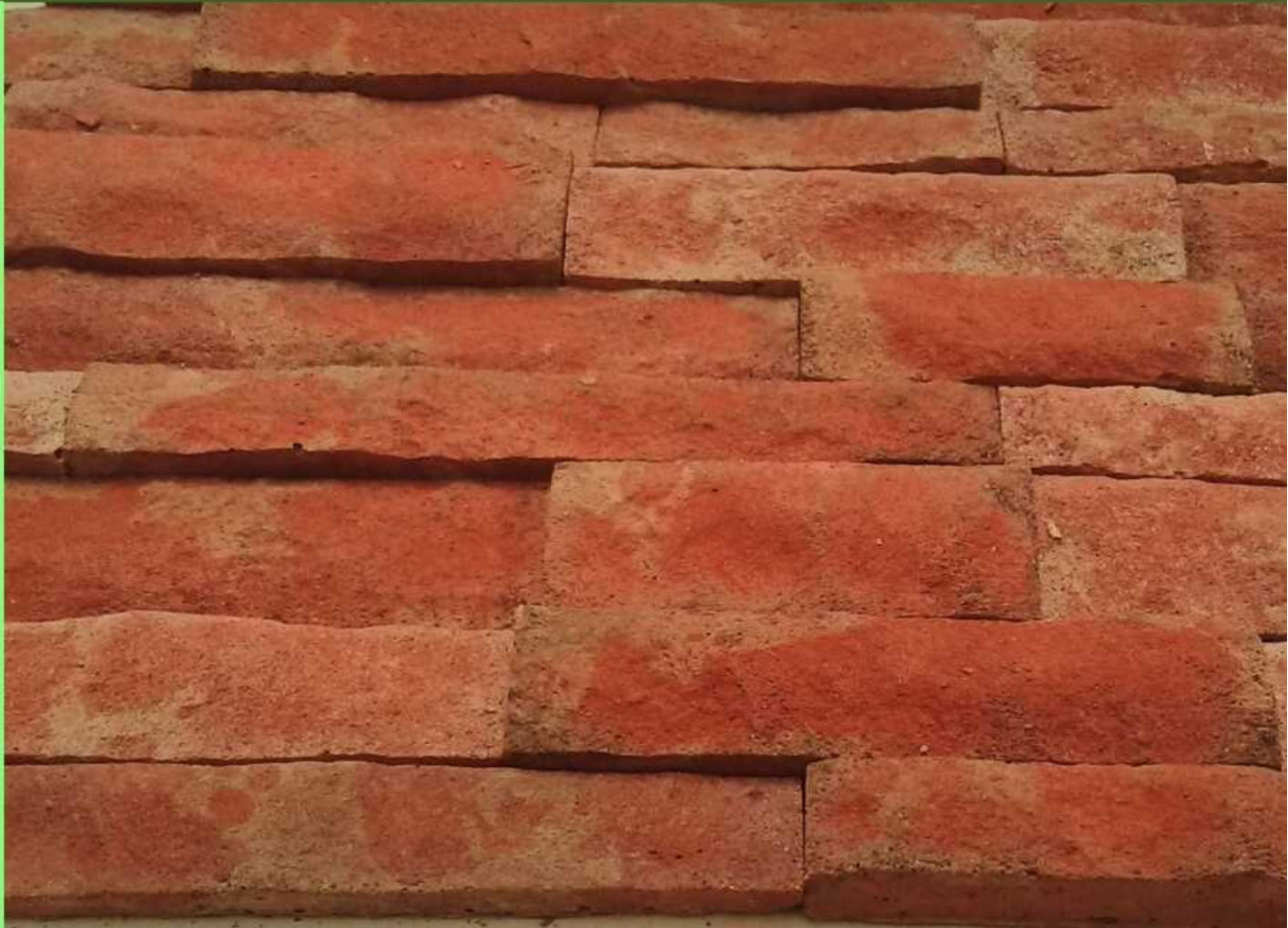
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WHAT CAN BE DONE WITH OUR MATERIAL

Modular decorative wall covering materials in the desired color, shape, thickness, glued to the mesh.

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WHAT CAN BE DONE WITH OUR MATERIAL

Modular large-sized decoration panels in the desired color, shape, 6 - 7 mm thin, reinforced with natural fibers.

In addition to all the explanations, almost all kinds of products produced with the raw materials and techniques used in the ceramic technique can be produced with our material. A small adaptation study is sufficient for this.





COST EFFECT

Our material has many forms. The raw material costs used in the production of qualified, high value-added ceramics and the cost figures of our material are almost the same. However, when the total cost elements we explained in detail are calculated, it is seen that an extraordinary cost difference will arise in favor of our material.



In the production of unqualified, low value-added ceramics (brick, tile, block, etc.), the use of industrial by-products, which are considered as waste, as filler, can provide a cost balance, and it is seen that a huge economy can be achieved when the energy and labor and area gains used for cooking are considered.



At this point, another very important gain arises. The wastes used with the material are costly and difficult to dispose of. By using these materials together with our material as filling material, these wastes turn into economic value and the problems in their disposal are eliminated.

THE ADVANTAGES OF USING IN THE CERAMIC INDUSTRY

More than 40% of the cost in the ceramic industry is due to the energy cost. This cost item can be eliminated by using our material.

In ceramic production, each stage of production takes time, drying the product in large areas to pass these stages, and holding the product to be lined up in the furnace. In order to realize these processes, a very serious amount of covered space is required. With the possibilities of our material, more than 50% of the space requirement can be saved.

One of the other advantages of using the material in the ceramic industry is time / work economy. Considering that each firing period is at least one day in the classical system, it can be easily predicted that the time savings and increase in production will bring a great advantage.

The ceramic industry has to allocate enormous financial resources for the supply, operation and maintenance of cooking equipment. With the elimination of the cooking process, such costs will be eliminated.





As a result;

The Technological Preparation level of my material is TRL7.

For the TRL 8 and TRL 9 stages, only a small adaptation process is required.



By creating the necessary standards of our material and using it widely, a large-scale transformation can be achieved in the ceramic industry in terms of costs.

On a global scale, it can be easily said that a huge energy saving will occur with the elimination of cooking. This gain is an important argument for reducing carbon emissions, which is at the critical threshold.



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This project is the first phase of a large-scale project that we have successfully concluded. It is very difficult for us to sustain such a large-scale project alone. To complete it, we need official and semi-official institutions, media support for its promotion, and financial resources to finance our work.

We are looking for Universities and Research Institutes, Non-Governmental Organizations, Environment and research foundations, funds and companies with strong infrastructure to carry the project to the market.

For more information, you can visit our website www.greenginnoation.com. Or you can contact us at blntgrkn@gmail.com

