Closing the anthropogenic carbon cycle

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An Integrated Industrial Strategy for a Sustainable Future

By Luigi Antonio Pezone

Translated by James Gien Wong

Introduction

The planet is faced with increasing signs of global ecocide due to a perfect storm of inter-related ecological, energy and economic factors. Anthropogenic Global Warming (AGW) is the biggest threat, triggering other ecosystem degradation knock-on effects such as ocean acidification, a melting croyosphere which threatens to released enormous amounts of trapped CO2 and methane, sea level rise from a melting Greenland and Anarctica, terrestrial biodiversity loss, ocean biodiversity loss and many others.

As scientists, engineers, technologists, environmentalists, ecologists, politicians and economists grapple to find solutions for the complex matrix of problems in an ever shrinking time window, there is worry that the long history of an inability to reachinternational consensus. resulting in

policy failure such as the Kyoto Protocol along with stubborn and continued resistance from the fossil fuel industry may delay scalable solutions until they are too late.

It is in this atmosphere of uncertainty that an Italian industrial designer offers a scalable and complete solution that is based upon well known scientific principles.

Italian industrial designer Luigi Antonio Pezone has worked as an industrial designer for many decades, designing and building a variety of different industrial plants ranging from automotive to water and sewerage treatment in his home country of Italy. From decades of practical experience with closed loop biological systems, Pezone has come to the conclusion that our engineered energy and waste treatment systems are fundamentally flawed in their basic design. Pezonetakes his cue from nature and applies cradle-to-cradle design methodology, biomimcry and systems thinking to develop closed loop anthropogenic carbon cycles which recirculates CO2 as food back into other industrial processes.By failing to adopt the closed loop cycles of nature in our design of industrial system, we treat CO2 as waste thereby creating DANGEROUS GLOBAL WARMING which is threatening human civilization.

In this book, the author, proposes a new system design that would overhaul the existing linear, open-loop industrial system by closing the anthropogenic carbon cycle on earth. To understand the solution, a paradigm shift is required that sees waste as food.

This book shows that it is possible to fight global warming and save natural resources at the same time, doubling the employment potential of the planet by means of public works

that retrofit existing thermo power generation plants to close the anthropogenic carbon cycle. These retrofits will allow us to use fossil fuels emissions and other types of waste along with terrestrial and aquatic biomass to produce clean energy while purifying the air and alkalinizing large flows of water that will reduce ocean acidification as it flows into oceans and acidified lakes at the same time.

Tweaking this system design with a variation can result in the desalination of seawater, solving freshwater scarcity crisis. The immense amount of compost produced by these factories environment will serve to fertilize the many barren lands, constantly increasing. The large accumulations of water achievable in these factories vertical, parallel to the natural flows, will be the best system of active defense against the dangers of floods and summer droughts.

The unintended side effect of todays' thermal power stations and water treatment plants are damage to the environment, the economy and employment. This book outlines a solution to these difficult problems. It is generally aimed at those who want a better understanding of environmental problems, and specifically at those involved in water treatment, air purification and energy production, which in the future will have to unite to achieve a common synergistic system that eliminates CO2 emissions. Several examples of concrete designs for future energy, water treatment and urban air purification facilities are provided, along with complete detailed engineering drawings. There are, even, calculations which demonstrate, unequivocally, that wastage due to incorrect cleansing techniques are more damaging than even wrong political choices.

Today, the politicians who have serious faults. But this book

shows that even in this case, the faults are more technical unimaginative, even today, insensitive to technological synergies in this book. Politicians are ill-advised. The labor problem is solved with the industrialization of environmental protection. This would amount to a second industrial revolution to the rescue of the first. The employment potential will not be much lower.

Preface

I mentioned in the title and subtitle of the conclusions at which I arrived after having studied and proposed, unsuccessfully, to insiders (from Ministry of Environment, regions, public environment, energy and even entrepreneurs) a way other than to protect the environment. I was inspired mainly to the fundamental concepts of biology and the natural carbon cycle that are not observed in wastewater treatment plants in the environment and those that produce energy. These systems are not able to close the carbon cycle, which must be closed on earth, before issuing the CO2 in the atmosphere, for many reasons. Especially, because they were not designed with the criteria of the overall treatment, which must simultaneously protect the water and the air, near and far. In addition, designers have not made use of the synergies in the industrial world, have led to the increase in production yields. The modification of the purification systems, heat recovery, CO2 traditional energy sectors, a greater involvement of the territory and the entrance in these areas of industrial automation transport technicians, multiply the capacity to protect the environment hundreds of times compared to the current ones. It will be the industrialization of environmental protection, without which, by now, we can not go forward.

The new environmental protection should start from the sewer system. Today the sewage are forced to travel miles in a free environment where they develop air bacteria decomposing matter, gases such as' hydrogen sulphide, carbon anhydride, methane. They also develop sulfuric acid, hydrogen sulfide, etc. .. Come to treatment plants in septic conditions, most degenerate from the path that drains from pollutants originate. When, slurry, finally, come to treatment plants the first thing he proceeds to give oxygen unnecessarily removed, with an enormous amount of energy and you do it in the worst way, in tanks discoveries. Oxidation is the main treatment purifying water, such as burning, produces CO2. This CO2 is added to the atmosphere than that produced by thermal plants, industrial, to that emitted by means of transport etc. .. Since the CO2 already overflowing, and another part remains in the atmosphere supercharges the ocean waters and the earth's surface. But the greatest damage produces them in water. The CO2 being a nutrient, along with other unwanted nutrients, develops the production of aquatic plants and algae decompose, they fall in the depths, consuming oxygen. It is not possible to extract the sludge produced in the seabed, slowly water bodies, including oceans, consuming oxygen begin to fossilize the sediments expelling the CO2 and subsequently also methane. Bodies of water absorbers, become or will become emitters of greenhouse gases. With increasing temperature, even the trees of the land will become emittitori absorbers of CO2, as has already happened in some countries, especially in the summers hot. In this book, among other things, propose two different ways to oxidize the water, absorbing CO2, not emettendolo atmosphere and alkalinizing the waters, not acidificandole; helping to produce energy, not only absorbing.

If the separated sewer system origin putrescible substances in purifying vertical modules (http://media.teknoring.it/file/news/depuratori.pdf) and purifiers that we know, they were replaced by buildings

developed in a vertical greenhouse, these could stay in the city, saving many miles of sewers and clean the air as well as water. In these buildings that I call manufactured synergistic vertical (F, SV), through two different parallel paths and sewage, is convoglierebbero waters and polluted air that depurerebbero climbing upwards in common paths and separate. (Http://ebookbrowse.com/la-depurazione-globale-nelle-citt% C3% 83% C2% A0-doc-d152379508).

Water treatment is not based on high pollutant loads and low flow rates, but on high flow rates and low organic loads. The air cleaners will not absorb energy but help to produce it. Are based mainly on photosynthesis that would take place in overlapping biological ponds that consume the nutrients present in the water and the CO2 present in the air producing floating aquatic plants (such as duckweed or azolla), which precipitate when they die and are extracted from the bottom to be sent to digesters that use them to produce energy. The water, gradually, that rise upwards become increasingly pure and free of salts. Could get rich in carbonates, consuming CO2, down to earth again, passing through the limestone greenhouses that would alongside those fotosintiche.

The flue gas purification and urban smog in the atmosphere would be tracing their origins through automated greenhouses limestone, which would also take place in which the oxidation and alkalinization of water (the surface reactant would increase by hundreds, if not thousands, of times over the known phenomenon karst and also the solubility of CO2 in water would increase by tens of times, going to occupy spaces that, outside of the greenhouses, at the same atmospheric pressure, are occupied by nitrogen and oxygen, according to Henry’s law). Being greenhouses subtracted action of atmospheric agents, occurs a stratification of the gas according to its specific weight, and the CO2, which is the heaviest, (1.5

times heavier than air), it retains more in the greenhouse, increasing its concentration and its relative pressure (Dalton’s laws and Einstein). Being moderately acid, CO2 erode rocks and concrete demolition, pulling from the same football that will make alkaline water that exits from the ski, go for acidification of lakes and seas. Industrial automation will handle and store, renew, automatically the rocks limestone debris in greenhouses to extract calcium ions, without resorting to the current heating of the rocks that emit CO2.

Whereas the thermal power plants produce large amounts of CO2 that is expelled into the atmosphere through the chimneys and are crossed by large amounts of water to cool the condensers of the steam that turns the turbines and alternators, will especially where energy is produced requires action to recover the wasted heat and CO2. The benefits will be enormous environmental and economic purposes.

First you need to change the chimneys which must not expel fumes, but only to facilitate the cooling of the same, making them equally climb to the top, but calling them down once you reach the top. The smoke would pass through electrostatic filters and heat exchangers. After channeling it would be in the greenhouses mechanized limestone, mentioned above. These chimneys have called them C.R.D. (Cooling and purification). The heat contained in the cooling waters of the thermal power plants can be used to heat the anaerobic digesters of enormous size. Whereas the yield of thermal power plants is only 40% compared to the calorific value of the fuel, 60% is lost as heat. In these heated digesters from the same waters produced by thermal power plants, we could digest of all, with high or low returns, according to the quality of the energy matrices that we will use. The biogas digesters that produce through these, it will be of higher quality than that produced by other digesters. This, being composed of about 70% methane,

28% CO2, can be depleted by the percentage of CO2 aspirating the latter from the surface of the slurry in digestion and transferring it to the greenhouse limestone. We could get to produce a biogas that comes very close to the calorific value of natural gas. This biogas accumulated in gas tanks and filtered will feed the same burners of the boiler if it uses light fuel, otherwise, we could create a network to feed the urban centers or feed another power plant, that, too, would produce clean energy and treated water and alkalized. I'm not finished. The warm waters that come forth from the digesters, will still be hot enough to heat the greenhouses production photos synthetic, always upright, can produce biomass energy and food, sucking, filtering, consuming more CO2, coming from limestone adjacent greenhouses, as well as purified the waters that rise to the top.

Obviously, biomass energy, together with those from the area will be digested in the digesters. But the digesters not only produce biogas. Produce the material liquid and solid digestate. The solid digestate is aerobically composted and dehydrated to complete sanitation. Subsequently, it will be bagged to be marketed as agricultural fertilizer. These operations could be carried out in automated processes, in other sections located above the digesters. The buildings where you realize all these operations I have called them "digesters dehydrators composters linear" (DDCL) growing linearly and parallel to the FSV. The liquid digestate produced by these buildings will be transferred to an oxidation basin covered, from which it is gradually raised to biological ponds to produce new biomass energy in an infinite loop.

Being very large quantities of CO2 from thermal power plants (about 10% by weight of smoke) to proceed to the neutralization, in addition to cooling water, it is necessary

to involve also other waters. But this will be good because we could send many more carbonates to the seas and lakes to combat global warming. This is in a nutshell the protective energy of the environment that may arise from the recovery of CO2 and heat wasted. The power clean is simply outdated. Even when the hydrogen will become a propellant can do so much for the environment.

The negative aspect is due to the fact that the purifiers for how they were conceived can not be recovered in these virtuous processes, while the thermoelectric plants only in a few cases can be recovered since the FSV, in particular, require very large volumes. We can estimate that the footprint of a thermal power plant would triple, while growing in height for at least fifty yards. We should not scare you. If the same amount of CO2 should absorb the trees would take fifteen times higher dimensions, but these could not purify and alkalize the waters. Therefore, the large power also produce large environmental impacts. The fault is not of the cleaning dell'alcalinizzazione energy and water, but the designers of the past and present who have designed plants that produce thousands of MWh, and have not thought about the added value they would have had if they had their implants made by producing less power but also from coal, what I call "energy in protecting the environment." Unfortunately, today, the power will need to be resized and otherwise distributed on the territory. But the benefits will be huge for the economy and employment, as this type of energy will produce many activities induced in all areas, both for the construction of infrastructure, both to supply the raw materials needed to greenhouses limestone and digesters, both for the induced product in the industrial world. But as the digesters may be fed with waste, the greenhouses limestone may be fed with concrete demolition purified by plasters and paints, which contain more than 60% of calcium oxide. Benefit of these processes that will provide the engineering industry as well

as transportation systems and storage, including those for mechanical machining of the land shown in the photo synthetic vertical greenhouses that they will use existing processing systems that are used in the open field, that create deep wounds that pollute ground. Indeed the irrigation water will not reach the slopes, being continuously recycled. Will also benefit agriculture in the field, which will benefit from the compost produced in a sustainable way for rifertilizzare the arid land. But through these facilities “thermo purification” we can desalinate in a sustainable way even large quantities of salt water and brackish water, which will be used to irrigate the fields. Even desalination would be by automating industrial circulating in the low biological ponds, mechanically, a large amount of baskets containing ionic resins to increase the softening capacity practiced on the surface by photosynthesis.

But the greenhouse buildings are not intended to be only of desalination, purification of water and air in an urban context and matched to the thermal power plants. They will, also, a great system of environmental prevention, accumulating vertically waters. Keeping clean and dry drains and small streams of water, so preventing flooding. The current sversano water purifiers degenerate with the advent of the first rains, not having the ability to treat or store it where. But there are also extra-urban contexts, that have never been dealt with in the right way. The agricultural water, always to blame for the pollution they produce and the slopes to the water bodies could be conveyed in large quantities in these buildings. The F.S.V. the depurerebbero stockpiling water out of the path of the water to prevent natural disasters and flooding needs in times of drought. Even the industrial thermal plants, cement plants, steel plants, alone are not able to close the carbon cycle. Even at these facilities must be combined with at least a chimney CRD, FSV a building, a building DDCL, a gasometer. All together become a single plant that I called “Global

covered Thermoelectric depurcogeproduction ” (DCPTCG).

I am honored that the international agency Pressenza, starting from an article that reports, more or less, the above information, you invite authors to submit articles on the topics raised by the undersigned (http://www.pressenza.com/it/2012/12 / the-political-purifying-wrong /). I am also convinced that no one will intervene. Who acquires expertise in this area makes it to the service of the existing system. Even if he comes to the same conclusion can not speak, unless it is a maverick or a harmless pensioner. I came to the conclusion that only by people between alternative projects you can do some detailed step forward to protect the quality of life of our children. Are probably the only person in the world that is exposed to ridicule by declaring an “inventor environment,” despite being snubbed by politicians, businessmen and even the environmental groups. What I have not understood is that if these gentlemen are entered in “facebook”, written articles, published useless projects and patents, finally, this book, I did it for questioning all those who have responsibilities in this area. There is not a plant on the face of the earth that properly closes the anthropogenic carbon cycle: consuming CO2 in the atmosphere and emit it without sending carbonates of the seas. As mentioned above, even the cleaners working for global warming.

There is the employment crisis world. Paradoxically, for collective oversight of the ruling classes, technical and political, the past and the present, the most important sector, what should protect the environment and resources, has not made a single assumption, because it does not exist. How did they escape activity so important, that the world may take a billion people in direct and induced activity. Close the anthropogenic carbon cycle is not a joke. It requires the

cooperation of all and many will be able to find work in this difficult enterprise. The continuing failure of world leaders show that the policy purifying, until now adopted, is completely wrong. I may be wrong too, so I would like someone to prove, without escape an honest comparison. And ‘now that the lords of the environment fall from the pedestal and are compared with a simple pensioner. I do not like my job, designer and inventor of the environment, both tried in absentia, only those who have brought the environment under current conditions. Not industry, but who has designed and legislated environment. It is they who have been silent on the articles that I have published and trashed projects and patents. This book should also serve to expand the panel of judges. Above all, to promote a greater culture on the systems of environmental protection. You must exit the slogans and discuss openly on projects. This culture did not make even those of the WWF, Legambiente, Green Peace. They should organize to propose alternative designs in detail. We must challenge the state of the art that is completely in the hands of the powerful. I’d like other people, sharing what I write, this book would translate into other languages. They can also remove my name as long as you spread the solutions, which are outputs from the top, from Cancun to Doha, nor from public office, nor even by multinational corporations and by environmental groups. Someone wanted that even were entering congresses where we talk about environment. Fortunately, the Internet, sooner or later justice will be done. If I’m right, thanks to the global water treatment and energy that protects the environment, the atmosphere and the seas will heal. Before we start, the better. Many young people can find work. Considering the silences received, shudder to think how many good ideas have been covered up in the past when the network does not exist. With the latest inventions I have concluded my creative journey, even leading industrial automation in the world environment and energy. Probably if I had paid someone to design the “Detox global energy and in protecting the environment” I would not accept, I do not claim to it. All in

all, I must thank the lords of the environment. Their silence made me realize that the best of myself I could still give. All of us, we can give the best when no one expects anything. I planted a seed that cost me six years of work, more than thirty-seven years of previous work, as a designer and installer of industrial and environmental. The rest has to do the common people. Must demand of public debates on these topics, not based on slogans, but on concrete projects. The experts and ordinary people must understand that the individual plants, which alone have never been able and can not close the anthropogenic carbon cycle. Needed structural work involving the entire territory. Environment everything is connected. There is also need of machines, but not only those. What they believe to conclude the insiders describing brilliantly in books and conferences, insignificant details about the balances of mass of activated sludge plants, if you do not see what's upstream, downstream, below and above the plants they talk about. Upstream, there is degeneration sewer which triples the work to be done. Downstream, there are bodies of water and the sea who would like purified water and alkalized. Instead, at best, receive acidic water, otherwise, spills untreated. Below, there are aquifers that are affected by the seepage of heavy metals, nitrates and pesticides, large amounts of water that does not even pass for purifiers, already inadequate. Above is atmosphere that receives the hydrogen sulfide and CO2 emissions of open tanks that have never thought to cover. Today they have begun to do so, but not to consume the CO2 in the water, or to increase yield purification, as taught by the laws of Lavoisier, Dalton, Henry, photosynthesis. Cover plants not only to spread the bad smells that should not escape lifts, with a proper design.

And the thermal power plants, which are competing to defend nuclear energy, wind, solar? Seeking to become unsustainable by pollutants in the CCS, increasing costs and creating dangers, not seeing that the heat and CO2, which wasted a

century, could be the trump cards to produce clean energy, sustainable and protective of ‘environment.

The insiders of depuration and energy do not cooperate with each other, how could they realize the industrial automation that could allow vertical integration, simplification, and the multiplication of the potential protective and energy? Without increasing this potential, we are defenseless against the pollution that we produce ourselves.

I wrote the book because you can not communicate with those who do not respond.

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CLOSING THE ANTHROPIC CARBON CYCLE

Table of Contents

TERMINOLOGY. 11

TABLE OF CONTENTS. **Errore. Il segnalibro non è definito.**

1) INTRODUCTORY REFLECTIONS. 14

2) SUMMARY OF SOLUTIONS. 35

3) SPECIALIZATIONS, ENEMIES & THE OVERALL PURIFICATION.. 46

4) THE PROSPECTS OF GLOBAL FACILITIES. 53

5) THE ENVIRONMENTAL RACKET. 58

6) THE ENVIRONMENT AND ECONOMY SEEN THROUGH DCPTCG.. 61

7) CO2 AS A RESOURCE WITHIN THE DCPTCG PARADIGM.. 68

8) THE PRODUCTION OF BIOMASS WITHIN THE DCPTCG.. 72

9) THE CLOSURE OF THE CARBON CYCLE IN DCPTCG.. 77

10) ENVIRONMENTAL PROTECTION AND ENERGY PRODUCTION PLANTS. 85

11) THE ROLE OF D.C.P.T.C.G. IN FUTURE ENERGY STRATEGIES. 89

12) THE NEED TO LEARN FROM NATURE. 93

13) PHOTOSYNTHESIS IN WATER. 97

14) PRIMARY PRODUCTIVITY. 99

15) COLD CARBONATION OF LIMESTONE ROCKS. 101

16) PALEONTOLOGICAL KNOWLEDGE & MODERN INDUSTRIAL AUTOMATION AS A MEANS TO SOLVING THE ECOLOGICAL AND ENERGY CRISIS. 104

17) C02 EMISSIONS AS A RESOURCE. 109

18) DCPTCG AS A SOLUTION TO DROUGHT AND DESERTIFICATION.. 114

19) ABBREVIATION OF THE CARBON CYCLE. 118

20) REDEFINING CLEAN ENERGY. 121

21) TECHNICAL WASTE, A GREATER PROBLEM THAN POLITICAL OBSTACLES. 123

22) THE GREAT PURIFIERS COMPLETE COGENERATION ARE EXCEEDED.. 130

23) REPURPOSING THE SMOKE STACKS OF THERMOPOWER PLANTS. 132

24) SIZING OF A SYSTEM OF GLOBAL COVERED DEPURCOGEPRODUCTION (DCPTCG). 136

25) The dimensional estimates of potential allocations DCPTCG in Italy. 160

26) THE COST OF D.C.P.T.C.G. 189

27) THE POTENTIAL OF DCPTCG TO DETOXIFY ITALY. 192

28) THE ECONOMY OF CALCIUM AND WATER I THE BASINS AND MANUFACTURED GASES COVERED.. 194

29) D.C.P.T.C.G. PATENTS & DESIGNS. 197

1) INTRODUCTORY REFLECTIONS

The United Nations estimated that the demand for resources will triple by 2050 when the population will exceed nine billion if humans continue to use them with the current level of efficiency.

Many writers, philosophers and environmentalists (especially abroad: William Mc Donough, Michael Braungart) have identified an economy based on the Cradle-to-Cradle philosophy (from cradle to cradle) assimilable to Paul Connet's "zero waste" as the ideal. They believe it is the only way that can stem the twofold problem: the depletion of resources and the pollution that is caused by human activities. But while the "zero waste" problem is being resolved on an industrial level, recovering materials and converting them back into industry, the problems of water and air pollution do not show signs of being solved. We are still at the enunciation of the principles. As they say: <between saying and doing there is the sea>. The writer, who has dealt with these systems throughout his life, had come

to the same conclusions by more practical ways than scientists and professors: by observing the dispersions of environmental and energy systems. Organic, uncleaned pollution and CO2 are the main source of eutrophication of lakes and seas, being also powerful nutrients. To the environmental damage they cause, we add the mockery of the economic damage caused by the low efficiency of the thermoelectric plants that do not recover the heat they disperse in the waters and fumes. The industry that should recover organic, inorganic pollution and heat does not actually exist. Sewers, open air purifiers, chimneys, chimneys, industrial factories, incinerators, thermoelectric power plants, should be expanded with new functions, or structural works should be created to support all the plants in order to recover pollution, without degenerating it, to produce new energy, return nutrients to the earth and salts to the seas (from cradle to cradle). Unfortunately, to obtain these results, everything has to be redone: sewers, purifiers, and thermoelectric power plants. The successes achieved by the solid waste recycling industry could be replicated and multiplied by one hundred if rational action was taken against global pollution. Many other jobs will be created for the recovery of other resources, which cannot be collected on the street and transported to sorting centers and factories, but need structural and synergistic works, comparable to authentic and sophisticated factories never designed by man. . These large factories will produce not only energy, but also power, protection against drought and desertification. They will go to the rescue of nature, not against.

Unfortunately, both public companies (including universities) and private companies have created this system, have nourished themselves and live on it. It would be merciless to say that everything is wrong. The technology acquired is valuable for reconstruction. But the current system does not work and cannot work. The unnecessary environmental summits, from Kioto

to Doha, confirm this.

According to a projection by the European Commission on resource demand for food, feed and fiber may increase to 70% by 2050, but 60% of the most important ecosystems of the world from which they derive these resources have already been degraded or are used in an unsustainable way. The year 2012 marked the record of CO2 emissions into the atmosphere by more than 35 giga tons, despite the global economic crisis has slowed industrial production in many countries. The oceans proceed quietly in the acidification process that has exceeded 35% and the glaciers recede visibly. I was struck, in particular, a study published in Nature (Ciais et al., Http://www.wwf.it/client/render.aspx 2005) highlights how, because of the rise in temperature of months of July and August 2003 (an average of more than 6 ° C above the average for the period), the woods and forests of Europe, instead of functioning as absorbers of atmospheric CO2 have functioned as a source, emitting a total of approximately 1.850000000000 tons of CO2. Even the nature reserves and biological ponds, based on eutrophication controlled if they are not protected and cleaned of organic production in excess will turn against the environment. However, in 2012, the global defenses are still entrusted to the trees and the few nature reserves, the oceans, glaciers, which as mentioned, are losing their defense capabilities. All these sources, much of the trees, we had a slight taste in 2003, exceeded the limit of absorption will become powerful emitters, not just CO2, but also methane and steam, as it increases global warming.

In 2012, in Doha, Qatar we arrived at the 18th World Summit on the environment than sull’ambieente without having agreed on a common line which can not be found without changing the way we design the systems of environmental protection.

With the universalization of “purificationcovered global” (DCG) and the “global depurcogeproduction thermalcovered” (DCPTCG), both non-existent, for a colossal and universal oversight of the designers of the past and the present, the world summits on the environment would be useless and there would be no agreement be reached. CO2 reduction and environmental protection would occur automatically using indifferently fossil fuels or organic. At the time of the summit in Doha, the (DCG) existed on paper for about three years and (DCPTCG), less than a month, but someone already knew and did not mention it, taking huge responsibilities. Of course, that is more for the (DCG)., It was not possible metabolize (DCPTCG). Many people do not want that big know everything you should know the environment and energy, especially the bad advisers. There are several reasons: primarily, not to admit mistakes, and secondly, to defend market shares of multinational companies, based on an environmental policy wrong. But even the media give a hand to keep quiet about the inventions and environmental proposals of a simple pensioner. That brings me back to some articles of the undersigned, available on the net, published in little magazines “On line”, unknown to the scientific, business and political writings at the Cancun summit in 2010 discussing global purification:

http://lexambiente.it/ambiente-in-genere/188-Dottrina188/6795-ambiente-in-genere-depurazione-globale.htm;
http://www.cancelloedarnonenews.com/2011/01/06/a-cancun-non-si-e%E2%80%99-parlato-di-depurazione-globale-la-migliore-soluzione-contro-il-riscaldamento-globale/;
http://altocasertano.wordpress.com/2010/12/06/l-intervento-cecita%E2%80%99-a-cancun-a-cura-dell-esperto-ambientalista-luigi-antonio-pezone/;
http://www.alternativasostenibile.it/archivio/2010/12/23/files/la%20depurazione%20globale.pdf;
http://altocasertano.wordpress.com/2011/03/21/il-c-c-s-inutile

-costoso-dannoso-meglio-la-depurazione-globale/; http://www.meteoweb.eu/2012/12/clima-doha-i-grandi-non-sanno-cosa-sia-la-depurazione-globale-e-lenergia-protettiva-dellambiente/171245/; http://www.meteoweb.eu/2013/01/la-crescita-sostenibile-non-e-quella-delleconomia-globale/176371/

I skipped the summit in Durban, in 2011. because I was already working on energy that protects the environment. I borrow the argument after Doha. So, with other other two vertices failed. We are always at year zero in environmental protection, while progress on other fronts are enormous. We think the evolution of the means to fight the wars. We arrived at chemical warfare, remote-controlled rockets, aircraft invisible to radar, the drones, robots, etc. . All this not to mention the nuclear bombs that date back to the forties. The man to hurt himself invented them all. He put together all conceivable synergies between chemical, mechanical, electronic, biological, computer science, while doing good, could not simply put together, in the territories, different technologies and equipment, in order to close on earth the carbon cycle. The most efficient means to protect the global environment from pollution are still those invented by nature: trees, soil, atmosphere, river and sea water. The only ones who still close the carbon cycle. Modern society, the large urban and industrial resulted in large concentrations of anthropogenic emissions, which for the most part, we can control, except for the emissions of carbon dioxide and heat. The fault is not that of CO2, which is the result of an oxidation perfect and does everything to get caught, being heavier than the other gases, and trying to be helpful to carry carbonates towards the sea, as it has done in the cycle natural. It is not even the heat with the CO2 can be neutralized. It is the fault of man to defend the environment, did not use the same synergies that used in the art of war and industry. Who produces enough energy dialogues with those who

do not, it purifies the water, the air, the mechanical, chemical, biological, computer and vice versa. If they talked they would have found that, in particular, thermal plants and water treatment plants would have to be designed differently to close the cycle of anthropogenic carbon in them, before downloading the fumes into the atmosphere and water in the rivers, lakes and in the sea. You would have noticed, as I have written in the articles cited and in many others, that putting together a central station and a large sewage treatment plant, the fumes could come out purified and alkalized water. I wrote articles, do not claim to be able to study these topics alone: □□I was looking for someone to convey ideas accumulated in forty years of plants. I have not found anyone, risking, as he did, only to be snubbed. But the great silences and received some minor consent stimulated me to move forward. With “The purification global cities” (http://ebookbrowse.com/la-depurazione-globale-nelle-citt% C3% 83% C2% A0-doc-d152379508), proposed to capture the hot air and polluted urban through the collectors underground to make it back to the atmosphere purifiers purifies it through the covers, which are nothing more than the greenhouses, in which the CO2 could be combined chemically with calcium oxide and photosynthesis: But I did not stop to that solution. Today, global water treatment in cities, that no one has seriously considered, it can be improved further by replacing the purification of the buildings covered with synergistic vertical (FSV), with potential vastly superior. These are part of the future industry in protecting the environment, which, if we are wise, we will realize putting together water purifiers and thermal power plants. In all countries of the world, designing public has not been able to create synergistic systems they closed carbon cycle. The water treatment plants and thermal power plants, which are public facilities, in all countries, they emit CO2 into the environment. Therefore, in all countries, the industry has not been possible to impose zero emissions. Designing a global water or air purifier is very different from designing a local

sewage treatment plant. The difference lies in the closure of the carbon cycle that must terminate without CO2 emissions. Not solving this problem, the legislature can not impose rules on private enterprise. The private enterprise can not close the carbon cycle plant without synergies public work together to capture and conveyance of harmful gases and greenhouse effect, including, primarily CO2. The dog chasing its tail by the advent of the industrial age. And ‘touched to the undersigned, unravel the tangle, probably because I spent half my life in the works of industry and half in environmental systems, in roles modest but concrete. I realized that the state of the art can not be overcome unless you connect the systems and these can not be connected if they are not modified.

Probably, other designers have realized that the state of the art can not be overcome but have opted for a different solution: the CCS that is worse than the disease we should take care of. In fact, this solution, questionable in terms of safety, completely forget that CO2, along with fresh water and football is the great resource for sustainable carbonates send the oceans. I am convinced that if the great of the earth, had been given a choice, would not have chosen the CCS well and have made important countries, such as China not to consider this solution. Unfortunately, the environment and energy Gotha world hardly admit the mistakes made and world summits on the environment will continue for much longer, without coming to a conclusion, though by different routes, you can not communicate with those who are really decision-making powers to raise awareness of the global water treatment and energy that protects the environment. The largest of the Earth are not the technical difficulty, will form opinions. Continue to believe those who brought the environment to the current conditions. At least, a flea in the ear of these great men you can try to put it, if it spreads what I write, for years now, today strengthened by (DCPTCG). Not to make unnecessary

controversy, but, in my opinion, it would be more logical discussion on solutions, not on percentages of CO2 to be abated. Reduce CO2 without carrying more carbonates to the sea would do more harm than good to the environment. Who would replace the CO2 that nature uses for billions of years to carry the carbonates to the sea that you are softening releasing more CO2 and methane? If those who manage the environment he could do his job, he would not escape the CO2 in the atmosphere, nor interrerebbe deep in the Earth, but would use it to carry carbonates of the seas.

Purification of the global I have already written extensively in previous articles. In this book I talk about energy in protecting the environment. The only one that can reduce CO2 purifying the environment and carrying carbonates to the sea. Mine is not a brilliant idea, focused on a single technology, can be considered as wind turbines and solar panels. Describe a job that no one wanted to learn. To know how to put together the systems and infrastructure that affect the environment, energy, industry. It 'a job that actively involves also the land and city planning. And 'the craft of the great synergies that can be learned only after a lifetime of work in the lower floors, entering the details. From the upper floors do not see anything. Not for me to carry out these projects, but the days I have left them take me to make them known, within the limits of my modest possibilities. These proposals do not have cost one euro cent to taxpayers. In our country, surely would have been appreciated more if he had drawn up a committee of experts well-paid. This certainly has been done, both in Italy and in other parts of the world and still have not found the solution, which requires a synchrony between heart and head, that no commission can put together. I think all in all, we Italians are lucky. The castes who govern us they could do even more harm. Today we would have even more debt, if Europe had not stopped. If you had not saved us we would have boarded the Japanese tsunami also in nuclear energy. I speak not of

politics, but only to the environment, despite being just fell the government of technicians, and the environment has only made the decree for Ilva, I do not agree. The crisis is not only Italian and world political and financial, but also technical, at least on the environment. There are no technical free and without a master, unless they retain ideas and energy for when they retire. I say this to lived experiences. Many of the plants that I have installed as an employee, I shared them and I could not tell. Since then, I saw that they were only palliatives. For myself, the environment is like the human body, must consume the energy it produces, without accumulating slag and acidity. Proper management would force us all to work in the common interest involving much more land, water, air and industrial recycling everything, without polluting. This should be the true consumer society. Before publishing a proposed environmental try to get it delivered to our government at regional or national level to know if they want to take into consideration. Sometimes, I enclose also the number of patent applications in the hands of the undersigned have no value, but in the hands of a public body, may contribute to the growth of the country and probably, at least in terms of environmental design, beat the time the international competition. Although it would be proper in the world immediately spread the good environmental ideas, at least the prestige and copyrights should concederceli. Today, more than ever, there is competition between countries. The important thing is that it is a healthy competition. Instead, it happens that good ideas are held to continue the market for environmental palliatives. The design of the public environment and energy is nonexistent. It ‘s all in private hands. Today we talk about scrapping past generations, but I do not think we have a generational problem. We just need to eliminate the caste system, which are more deeply rooted than you think and rebuild the country. I’m older ministers and secretaries, but I can assure you that for the purposes of life, it makes more working in retirement, without being paid, that an employer who needs to invoice, to be able to pay. And

to bill needs to be part of this machine gear without wasting resources protecting the environment. I would not have been able to work on these topics if I had not given up a few years of salary. Freedom of thought and expression combined with the experience are a deadly cocktail, to break down many shrines. No one has given me the opportunity and the honor to work for the ministry of environment and energy, but I did it anyway. I can say without permits. I spoke only when I was ready for use projects or ideas to discuss. No one wants to discuss. I may have done something wrong. It is up to others to prove it. Whatever happens, I'm proud to have tried it. If you did not you design, you can not argue. This did not understand neither politicians nor the technical politicized. The projects are the first of the decrees and not all projects are good. In the world of the environment and energy, we must learn how to design in the interest of the global environment. In this book, I picked up the research that had to help me understand the reasons why my ideas are looked down upon by the world environmental science, politics and business. I found only confirmations to my intuitions and carry along with new proposals. I cite many examples of environmental systems that solve local problems and create global havoc. The title of the book, I have changed many times, it is difficult to condense so many problems in a nutshell. At the last moment I decided to dedicate this latest summit failed in their environment. Cause in the title reaction of the experts, who are silent for years on the global purification. If the current energy and purification systems have fathers who defend them. If you are the sons of no one, the environmental authorities because they spread, and above all, because they do not want to change them. I think that just spreading new ideas and new projects can be dismantled and energy cleansing techniques consolidated, despite the obvious failures. I do not think the slogan: No coal. No to the gasifier. No to the digester. No to the power plant. It does not matter what goes in the works, but what comes through the exhausts of water and air.

The conclusions that I have reached are that the environmental protection systems are wrong from birth. I want to simply say that today the waters that pass through the thermal power plants are tens of times higher than those that pass through the purifiers. These waters do not even treat them according to the value of the receiving water body alkaline. We give you back hot environment, without giving anything in return. Apart from the many other problems that we have not solved, the question arises: how can we think of for acidification of 1.45 billion km3 of water on the face of the earth, even if we do not act on very little water passing through the plant? The beauty is that we can alkalize the water consuming CO2 and for unknown reasons, all pretend not to understand it. Perhaps the reasons are not so dark if you think that immense potential to exploit these come out all the mistakes made in the design environment. The air cleaners not serve more and thermal power stations should be resized and better distributed on the territory to clean energy. Systematically exploiting these applications with low energy consumption, long ago, we could speak of “purification global” water and air and therefore also of thermoelectric energy clearing. Whereas the thermal power plants necessarily have already been realized by the sea, the rivers, the lakes, it would be a shame not to continue to take advantage of these tremendous opportunities worldwide. The concept of protection of the global environment, unfortunately, is still unknown to the designers and state of the art.

I would have been happy if my work had been trashed, passed by the projects presented in Doha from Gotha environment and energy. Instead, I am sure, that will be trashed in order to continue on the same road. That palliatives purification and expensive new energies that may normally be simply cleaned. Of the 194 delegations of members, no one knows what the overall protection of the environment. The only ones who could know those are Italian. But who are they? Who has ever seen them?

They are professors and scientists? Ministerial bureaucrats? Politicians? Great managers? No one in this country wanted to know the global water treatment and energy in protecting the environment and no one could talk about it. Fortunately, we are in the Internet world. The lies and hypocrisy have legs getting shorter, there is also the publisher of the reflections and projects a modest pensioner who, for years, has large environmental projects in the head, not wanting to develop on its own. I do not know how this story will end, but I am certain that what little I did, I would not be able to do it without the cooperation of those who cooperated by publishing my articles. It took a few encouragement of friends sconosciti to not feel alone in this fight. Things are not going well, but would have been worse and hopeless, just twenty years ago. In the end the truth will come out and the world leaders we can talk about real solutions to produce sustainable clean energy, protect the environment, create jobs.

I leave behind my short inventor environmental activities (2006 – 2012), having nothing to invent. I had to do things in a hurry to leave Grieve not the indifference of local and national environmental authorities, which in recent years. I sent my proposals on domestic sewage, sanitation, urban, river, lake, harbor, marina. I concluded the virtual path with the energy in protecting the environment. There is nothing I have invented it, but they would not even born virtually successive purifications that are based on earlier, I had to imagine working without being able to spend a single euro in experiments and prototypes. I think I’ve prepared the material for a peaceful discussion with those who are willing to discuss it. Anyone. If those who manage the environment and energy wants to continue to keep out of these arguments is their choice. I just find people to confront, how does it compare when it comes to football, Ferrari, food, good wine, even in politics, that healthy. Someone has to be in this

country and around the world, with different ideas by the undersigned on the environment and energy. I am sure that those who keep silent not always agree, especially if he has skeletons in the closet. It is not appropriate to make the processes. I'm not a cassandra, errors relate to the past, the conclusions and perspectives that I did, I'm pretty optimistic. Just change the road:

WE CAN CLEAN COMBUSTION SMOKE, HEAT RECOVER THE CO2 INCREASE EFFICIENCY AND ENERGY purification, PRODUCING BIOMASS ENERGY AND FOOD, CLEAN ENERGY AND COMPOST, purify, alkalize, desalinating water, FIGHT THE DROUGHT', desertification, The ACIDIFICAT, CREATE JOBS.

These things not only about the environment and energy, but future development of the whole society, the way to build the city, how to distribute the production and industrial activity in order to avoid wasting energy and save the environment, I write a whole book, that audience when I realized that even in the world of energy there is no one prepared to listen to a simple pensioner. And 'alive and well the world of energy, while, unfortunately, one of the purges of the past, especially in our country. There are already too many criticisms of our political class and technique. I do not want to sink the knife in the wound. In addition to all, from my point of view, you do not save even the most advanced countries. They pretended not to understand the "purificationcovered global" that he could not give birth to the "global Depurcogeroproduzione thermalcovered" (DCPTCG). It was a birth announced, but the Italian public showed no interest. However, Italy, at least for thirty years, they could export to the world this development model based on energy that protects the environment, whether state-owned companies such as ENI and ENEL, you were shown to be less closed to the innovation of industry leader's purification.

The problem is knowing how to contact them, in which bureaucratic ends around your practice and where will the cover-up. Contact ministries and regional presidents is even more difficult, while private companies, at least in the field of purification, just trying to defend their niche in a market wrong. However, in my small way, I came to the conclusion that energy policy should be unified and purifying the world, not in words but in deeds. The plants that produce energy must also purify and protect the environment involving sewage, stormwater, agricultural, industrial and polluted air. Everything must converge in DCPTCG, where it will close the cycle of anthropogenic carbon. If you do not include large institutions, I will try other realities smaller, more lives and more young people to understand this pattern of development, which is inspired by the new trends to the recycling of waste and bio energy, but it increases the capacity, without neglecting the old energies, unsuspected energy recovery, synergies with modern purification systems and industrial automation. Everything can and must compete physically and materially in an integrated system that produces energy at the same time, water treatment and environmental protection. Nothing to do with the current integrated water services that have only unified bills to pay and termovalorizzazioni, who abuse the word only, with a few exceptions.

We were wrong to conceive of power plants separated from wastewater treatment plants. We were wrong sewer systems, which degenerate from the sewage treatment plants that purify and sversano everything that can not be purified. We were wrong chimneys that do not allow for the recovery of CO2 and the heat of the fumes. We were wrong to make big power plants that disperse too much heat and CO2 at the same time, you might as well recover, but would result in works of great visual impact. Central smaller, in the order of a few tens of MW, distributed throughout, would have a lower visual impact,

would protect the environment better and would create a lot of employment opportunities in the management and nutrition of the plants, but also in related matters such as construction, biogas, industrial automation, which we will serve the new facilities. And ‘This is the model of development that our country could and should export to the world.

In D.C.P.T.C.G. that will be the combination of a thermal power plant and a sewage treatment plant of the new generation CTE remain the same, but it will change everything. Energy production and environmental protection will participate in all that is combustible and digestible. What will be released into the atmosphere will not be smoke but clean air and water that will be discharged into water bodies will be purified and alkalized. Will be abolished and the chimneys purifiers that we know.

The system we propose is based on the enlargement of the CTE with new sections that can take advantage of the heat and the CO2 they produce. They are part of these new sections chimneys CRD that bring down the fumes contributing to filtration and cooling; buildings DDCL that take advantage of the heat contained in the water to heat large anaerobic digesters producing biogas and compost for agriculture, high quality buildings synergistic vertical FSV that consume CO2 and produce waste heat energy and biomass sludge, which transferred to the same DDCL, contribute to the production of biogas and compost. In F.S.V. CO2 will also be used for the carbonation of limestone cold stored on multiple floors in special baskets hanging trolley. It ‘s the continuous recycling of water between the limestone section (scmcv) and purifying (sbsfcv) to allow the absorption of CO2. Rains of purified water (desalinated and furniture from perforated baskets containing ion exchange resins), drag in the water basins underlying the carbonates produced by the corrosion of

the rocks that will be periodically renewed. But F.S.V. will have a purifying capacity much higher than the capacity of energy, while the DDCL, recovering the waste heat present in water and gas-fired power plants will have a vastly superior digestive potential. In other words, to clean the current thermoelectric energy from fossil CO2 emissions, through the DCPTCG, incrementeremmo 0.7% of the energy produced by the plant itself. This energy produced abundantly satisfy the energy needs of purifying the same sections. Is not little if one considers that the system C.C.S. they have been experiencing for years now, all over the world (including Italy) reduces the efficiency of fuels by 11% and even 30% for coal, without counting the cost of the landfill, resulting in another reduction yield. Energy production that we can get is just a side effect unexpected, as the main purpose, to clean fossil energy. Not only able to clean energy, but raffredderemo fumes, depureremo, alcalinizzeremo or dissaleremo all the waters that pass in the CTE of the future. We will be able to transit in C.T.E. many more water than the present ones, which are already many tens of times higher than those that pass through the purifiers. So, we can eliminate the current purifiers. The existing treatment plants, designed for high loads and small flows, sversano large amounts of untreated water, emit CO2, not alkalize the water and are not even able to dissalarle, except through specific systems and in terms of sustainability can not compete with the system proposed in DCPTCG. A real surprise are the D.D.C.L. that have potential digestive able to double the potential of CTE., means that we will have the remaining 99.5% of the potential of digesters to produce new energy, digesting biomass from the territory. In Italy, if trasformassimo in plants depurcogeproduction the existing thermal power plants, with estimated yield of 40% (as per calculations given in chap. 25, we get 20% of the energy needs thermoelectric digesting all organic waste digestible. Saturating the remaining potential digestive with energy production quality, we would come to produce 56% of national demand. The other 44% of the energy

could be produced equally with energy production quality in modern power plants with combined cycle. These have an efficiency of 55% and combined with DCPTCG, which would recover the waste heat, would come to a thermoelectric efficiency above 80%. Considering that the new plants would produce the compost directly and that can desalinate brackish water, purify agricultural ones, that today we can not do due to the synergies plant, the overall performance will become more than 100%. universalizing If we think that the system, the large amount of compost we produce, it could also heal the land that you are drying up, in the end, do not subtract land for agriculture but them will increase. This, apart from crops off the land that we could make in greenhouses vertical. Having developed these projects, it was natural to ask why we allow the perforation of the ocean floor risking irreparable environmental disasters, when the energy we could produce clean, at home, improving the environment, the balance of payments and creating jobs? They face a census of uncultivated or poorly cultivated, and in the process of desertification.

And 'This is the topic discussed in detail in this book. I would have loved to write it with the young researchers of CNR, ENEA, ENI, ENEL, but it was not possible. These organizations were the first to snub the inventions of a pensioner. However, the system that I propose is not compatible with the CCS (Carbon, capture and storage) of CO2, that these large institutions are carrying out. Should be to give them in this respect. For myself, the CO2 must be stored deep in the Earth, but is used on site, as a fundamental resource for the protection of the environment. Probably, the positions are irreconcilable and also the Italian world of energy I do not respond. The science is correct, but the system applications designed to protect the environment and produce energy must be redesigned. If more than 150 years since the advent of the industrial age we have not yet understood that the sewers should not be dimensioned only on

the basis of hydraulic calculations, that the chimneys do not have to be sized only from the point of view of the draw but as an element of purification and recovery , that the waters that go down to the sea should carry more carbonates, that the anthropogenic carbon cycle must be closed in the works, not in the environment, it is natural that in 2012 we are still left with the protection of the environment and in the correct production energy.

Having specialized, especially, in developing industrial and environmental details I could build, as a bricklayer, a brick after another, the purification and the overall depurcogeproduction thermoelectric global. Although he has not spent a single euro in experiments, will not collapse the castle, if I have to change a few bricks. It’s about time that the insiders one were to compare with these solutions. We can not continue to scrutinize the satellites to try rains and winds that release, tentatively, the city smog and fine particles, moving them somewhere else, to do damage. The pollution must be fought at the same time when you generate. As I show in this book, even pollution can be turned into an asset, but only if you know how to put together the systems.

If I had not put together systems that treat water, air, energy and industrial automation, I would never have come to propose these solutions. Like it or not to insiders and most importantly, the taxpayers, will have to accept that, environment and energy, it is almost everything to be redone. It ‘true that the thermal power plants and thermal plants can be saved, but the condition is that the surrounding area is eligible to accommodate physically, around the central sections needed to clean energy, heat recovery and produce new energy. These sections will triple the footprint of the original boiler. If this work were to do it the nature of forests would take thousands of times larger than the plants

that I propose. If we reason, we also understand that few things are current employees concerned, including those of the new energy (solar and wind) emerging, ranging resized. The real sustainable energy, that simply is not clean, it is the one that cleans and protects the environment. Faced with the continuous recirculation of the organic and inorganic matter, which claims the energy in protecting the environment, we need everyone. This will be the largest industry of the future. That will allow a more equitable distribution of wealth. E 'was too easy to extract from underground resources belong to all humanity, market them, as private property, to produce energy unpurified, wasting at least 60% of the calorific value. Recovering wasted heat, cleaning the energy produced would have protected the environment and a better distribution of wealth, creating jobs. We could do it with the old technology, but better late than never.

To begin with, remember the non-existent environmental prevention made the nonexistent sewage drainage system and the non-existent global urban sewage, of which I have written on several occasions, but with these, I would add that many non-existent reservoirs, without fail, would like to achieve in the mountains, flooding the valleys and building dams. Ben are also these basins, when you can achieve them, but, in my opinion, are needed especially those that have never been made anywhere. I am referring to water storage basins, developed vertically, which would alleviate the hydraulic load of watercourses and drains, preventing flooding, which would improve the quality of water and consume CO2. These basins constitute a dynamic accumulation of water and should be made, especially in the cities and close to the thermal plants. For this reason, I have called them "fabricated synergistic vertical" (FSV). In the cities will be used to purify water and sewage polluted air, which is also captured through a different sewer system (see art. Purification global cities). But F.S.V. will give their best if accompanied heating plants,

blast furnaces, incinerators and, above all, power plants, to clean the smoke they produce and recover the heat that they disperse. In these functions will be helped from smokestacks modified (CDR) and manufactured digesters, dehydrators, composting sludge (DDCL), which I'll discuss later. The F.S.V. accumulators will be dynamic because it will also act as water purifiers, alkalizers, desalination plants, depending on the needs of the area, the source of supply upstream and downstream of the reservoir. For structural reasons, and practices we could not achieve the accumulation of water in the vertical: the hydrostatic pressure on the walls do not recommend this solution, therefore, the FSV will consist of slabs with overlying tanks height of about a meter that will function as facultative ponds. The water that arrives in these buildings, from the lower floor rooms on the top floor and as it rises to the surface is cleaned producing, through the photosynthesis of aquatic plants like duckweed or azolla, which carry a cloth surface, which, preventing the passage light, prevents the growth of algae. The production of these aquatic plants absorb CO2 from the order of about 10 t of carbon per hectare / year, which translated in terms of energy equivalent to about 80,000 kw / ha * year. But it is important, above all, the appearance depurative. If we want to desalinate completely waters that rise to the top, assuming you have them taken from a source brackish or polluted by nitrates and heavy metals, can circulate in these ponds of the baskets containing the ion exchange resins cationic and anionic. The water, rising, will arrive at the pond with the final salinity makes us comfortable, while the resins can be regenerated automatically passing through tunnels of regeneration and returning in the ponds for subsequent desalinizzazioni. But if, instead of desalination, we want to alkalize the water that we purified, we descend through the limestone adjacent to a greenhouse, which is always part of the same building. In this greenhouse immagazzineremo in hanging baskets of crushed limestone (which we will repeat as they consume) and will input from below the air polluted by

fumes from heating and smog of the city. For the joint action of the environment covered, desalinated water and then eager to reabsorb salts and gas, and the wealth of CO2 in the environment, we will subtract ions of calcium and magnesium to the rocks we will ship out to sea. We have already seen that two processes do not exist. But if, if we want to save in the process of desalination of water and do not have to send the water to the sea, but rescue them from the sea, we must not discharge the water running through the limestone greenhouses, but collect them in a basin (braa), until accumulate such a quantity of calcium and magnesium, which precipitating, produce deposits of carbonates which, once extracted, will leave the water in acidic conditions, that refitting to greenhouses limestone, produce other carbonates. Spare a large amount of cationic resins in the treatment of desalination, consume CO2 and produce carbonates, from which we can derive calcium oxide with lower costs and lower emissions of CO2.

Obviously, to accomplish these processes, which do not exist, it is necessary to integrate these buildings, which do not exist, of: electric water lifting and sewage sludge, electric blowers and fans for air circulation, mechanical systems for the transport and the ‘ storage of ion exchange resins, mechanical systems for the transport and storage, of the rocks to the area of □□reinstatement; mechanical systems of tillage and collection of production in greenhouses dedicated to crops. Since, these hypothetical buildings, developed vertically, we will need large buildings, diversion of water, the technology developed in the industry to lift, traslatare, storage baskets and racks, work the soil, if you want to proceed with agricultural production. I hope I have clarified the reasons why today you need the dynamic accumulation of water, and also the reasons why I call these buildings “synergistic and vertical”, but there is a whole book to come in, most, in detail.

Some will say that these things will require huge investments, leaving today without wasting huge resources and protect the environment without taking advantage of the many potential direct and indirect employment, which would result in the real protection of the environment, replacing the fake one. The FSV, in addition to purify the environment, along with other factors, contribute to the doubling of the efficiency of thermal power plants through the heat recovery and the production of biogas. These recoveries yield widely allow the recovery of the necessary capital investment.

From my point of view, the politicians are wrong, but they are the engineers that put them in a position to fail, forcing them to choose the lesser evil. Or, even not to offer technical alternatives, giving assodate for the wrong ones. Many things were wrong in the design of systems of environmental protection and energy but I'm allowed to criticize only when I was able to study and propose alternative solutions. Unfortunately, these solutions have only been able to study them in retirement and arriving very late. This shows that there is, in the World, a plant design public, which goes beyond the specialty of the individual sectors. But, as I said, if you do not put together the plants will add only errors. There are designs private marketing systems and machinery for the treatment of waste and the protection of the environment that they can not close on themselves the carbon cycle. No one has noticed this very serious defect. No one is willing to acknowledge mistakes. Mainly technicians. To close the carbon cycle must be an unbreakable bond between the territory of the water, air and energy. The plant must take account of huge volumes of air and water masses that are balanced on the spot. At most they can be marketed in various technological components. The bulk consists of structural works. The environmental systems that I see in our future are completely different from those of today. Will the large factories, where will count very well

industrial automation that there is never entered? It ‘s harder than you think to introduce new ideas in these areas that, in my humble opinion, have taken the wrong path plant by at least half a century. In fact, with the technology of the time, without great inventions, we could better manage resources, protect the environment and have clean and sustainable energy.

Personally, I realized that only the eighteenth conference, we are still at the starting point. Still there is no basis for making international agreements on the environment. The reason is very simple: have not yet been identified global environmental protection systems that can be shared and sustainable impact on the entire world economic system, such as DCPTCG. The solutions that lie ahead glimpse only worsening. Can not be imposed to the poor clean energy not economically viable when they have nothing to eat, or force others to slow down their growth competitiveness in the name of generic global agreements on pollution, not to mention sustainable solutions, which are useful to the environment, to ‘economy and employment. The few ideas advertised and also experienced as the CCS and artificial trees have nothing to do with sustainability, even with the protection of the environment, and employment of the people. Far from it. Each country should commit to reduce CO2 by 30%, without knowing how. But apart from this mysterious reduction, which only allows the recession, for experts, of which we also pay the bill of the hotels, it seems that environmental issues are all focused on the percentage of CO2 in the atmosphere, but they are not. The reality is clear: industrial production, the energy and agricultural damage the environment locally and globally. But also purify the local water, air, waste, while solving local problems harm the environment globally. He was right the Nobel laureate, Paul Crutzen, when in 2000 coined the term “Anthropocene” to define our era, as the first geological era in which human activities have been able to

influence the atmosphere and alter the balance. The planet Earth, without us, would have a natural tendency to acidification, mainly due to the impossibility to extract and digest the sludge produced from water through natural cycles. This phenomenon, together with other, external to the planet, leads to an alternation of ages of heating and of glaciations that last hundreds of millions of years. The man, above all, with the advent of the industrial age has been able to dramatically accelerate the speed of these changes. With an environmental policy different, creating the proper machines and in the right place, it could positively affect these balances, despite the growth of the world population, even slow the process of natural acidification.

Do not take it the insiders of the errors committed. Only those who do not work no mistake. In the end, when they invented the air cleaners and power plants there was no talk of global pollution, not even global warming. Indeed, mistakes they have committed too few. They believed they had found the right solutions and have not experienced other, that even without the specter of global warming would have been more effective. Wrong experimenting with new solutions would be human, to persevere in improving a wrong system was evil, even if, in the end, some improvement has been achieved. The game is not worth the candle because the systems are still incomplete and deal with very little water. That’s all I can do without changing the street, because the water must also be used to clean energy and must coinvolgerne much more than that with which you play the recirculation in plants, after having degenerated into the sewers. Forgive me if the insiders are not tender towards them. But who are the experts? Are public or private? Until now, the entire planet nor the public nor the private developers have been able to put together protecting the environment through energy. Not for ideological reasons but practical, the design must be public to take control of the situation and obtain the technicians to put

together systems and infrastructure.

Today, that has been invented everything is very difficult to make progress in every field, without extensive experimentation. Sector specialists and researchers can improve detail, that although they are important, allow little progress in overall performance. What is difficult to search and specialization is possible for synergies plant that few get to see. The scientific specializations techniques do not allow to leave one's own laboratory and the field. Do not just put together engineers from diverse backgrounds to find links. If it were enough, we would have already solved the problem, I would not have written the book, and I would not have filed my patents. To see the links between the environment and the territory energy it takes training. Here's an example: A friend took me to look for mushrooms in the mountains. I could not see them because there were not many, but he, being an expert, he was able also to fill half the basket. Not surprisingly, after almost forty years of activity plant in a few years of retirement I filled my basket new environment and without stop to argue with those who do not want to discuss, I refer to the discussions after filling the basket also energy. Those who are not accustomed to study different plant solutions, has turned to the yards, did not live far from the world and experience different environmental or energy, can not innovate, in substance, these systems, which are still not sustainable and does not protect the 'environment, despite the undeniable progress. The most important invention in the energy industry in recent years is certainly that due to the synergistic action between the gas and steam turbines that have led to the combined cycle and a jump of the general efficiency of about 25%. This invention would have deserved the Nobel. Let's think about what we can achieve breakthrough performance with the synergy between whole energy systems and water treatment plants. We will have a jump in energy efficiency by at least 30% and a jump purification efficiency

of 100%. Contrary to what you might think the ball at the foot of environmental protection, there are thermal power stations, which have made enormous progress, but water purifiers, which have not yet understood their role. The air cleaners today, although there has been widespread throughout the world, not to protect the environment and can not connect with the CTE When I talk about synergies, I am not referring to the current plant scrubbers, but to those I describe a few years, and in Italy, yet no one wanted to understand.

What we now consume twice or three times the resources that would be granted, I'm not to say it, but national and international bodies. The same people who have been silent on the global purification. If these organizations do not pay crocodile tears only to encourage palliative proposed by some corporations must grapple with the global systems depurcogeproduction I propose. The award-winning Nobel I.P.C.C. only reducing CO2 emissions (by capturing and interrandole), can not claim to improve the overall management of the planet's water, which are also linked to the circulation of ocean currents, melting glaciers, hurricanes, (generating waste and other environmental hazards). I knew it would not be sufficient to convince my modest publications the environmental managers of the planet. They failed writers much more important. To dismantle a great wrong system, you need to develop concrete projects and many details. An impossible task for anyone without an extensive knowledge of local depuration, lifting, general plant and more. You can not improvise "global projects". Other designers and inventors were more fortunate: it took was an idea, an intuition to develop, someone who has believed someone else who has funded the project, so as to produce useful and marketable equipment. In the case of thermoelectric depurcogeproduction overall it was a mosaic put together, unconsciously, from a life of work, processes and technologies far between. The researchers, with the best will, can not see these solutions. The research must continue, but

it can only give other boxes to frame. Even the work of designers who specialize in individual sectors, provides boxes to frame, in a much larger design. There is little that climatologists, geologists, biologists, chemists, engineers, propose partial solutions and locals. To design global facilities, fantasy has to live with the technique and the ability to go into the details of individual sectors. Not worth less than the dream of the greatest inventions of purifying water, air, heat recovery and CO2, ocean acidification and protect the earth by the salinization, while energy is produced. We need a global vision and detailed to engage in these large plants also the land with streams and watersheds, agricultural land, the stone quarries, coal mines, smokestacks and Ilva steelworks in Terni. The existing industrial and environmental realities, the old power plants are the sources that feed the new buildings synergistic dehydrators digesters and compost producers. The induced activities for the construction of water works, construction, the gas tanks, industrial automation for the vertical development of the works, will create many job opportunities. We do not need to create even and especially occupation? For luck and above all, by necessity I came to these conclusions without spending a single euro in the trials. The cleaning of fossil and non-fossil, requires immense flow of water. It must be seen as an opportunity to also improve the management of water, to form water reserves that do not interfere with the normal flow of water. E 'was necessary to eliminate everything that does not serve the environment seen with this view, the first thing the activated sludge plants and the current sewer system must be able to capture even the CO2 and particulate matter from the environment urban. In the new environmental protection system joins the old photosynthesis, the old karst phenomena, the old anaerobic digestion and the production of biogas, but also purifying modern techniques, such as ion exchange and industrial automation, which are not never entered in the treatment plants and thermal power plants. These solutions are applied in a modern key which improves the

general performance and the quality of the biogas, which is very close to the quality of the methane. The turning point for creating true protection of the environment and the true clean energy is to create environments suitable plant synergies and exploitation of water as a reagent, solvent, and means of transport of the components involved in the processes. Although the history of man is paved by the success of fantasy pairing with the technique, the company has always been more difficult to convince the technicians who make mistakes and do not want to change course. Especially in the environment, where everything has already been invented by nature, would have to understand it yourself when technology has become too complex for simple break down of unwanted nutrients. ‘ll Never admit that they have complicated things. And never acknowledge that when they did they stopped halfway, without adjusting the water to the receiving water body. With great transport is also the wrong paths can bring some results, but this is true in medicine and science in general. Not in systems that protect the land that in addition to quality must also do the quantity. How can we expect to record in the fight softening oceanic and global warming without dealing with large masses of water to alkalize and large volumes of air to be purified? As we can see the waters flow coming out of the hot thermal plants to use them without thinking? How can we expect to bury the CO2 when nature uses it to carry carbonates in the seas? We are neglecting sustainable energy and protecting the environment, we have at hand and we spend vast resources to produce clean energy but not sustainable economically, which does not participate in the cleaning and protection of the environment, which creates more waste difficult to dispose of. The plant must be simple and straightforward, especially should shorten and close to them the carbon cycle also consuming CO2. Nothing to do with activated sludge plants, the bioreactors to break down phosphorus and nitrates, nuclear reactions, and after-burning precombustioni to clean energy and landfills of ecological bombs made of slag, non-renewable materials, chemical poisons

and CO2. In this sector, even, the specializations of the small businesses that normally improve and innovate, have improved and innovated a wrong system. Today, even small businesses, super specialized in the environmental sector, producing machines that do not serve to protect the environment. The whole system of water purification systems hinders the emergence of the global security environment and is not suitable for treating large volumes of water and not being able to involve the air in treatment. If purification systems overall, I was studying, I had not been brought to devise, in symbiosis, the only energy production can protect the environment and potential for sustainability, the silent majority would have already won their war on protection global environment, for personal interest, not to say a word to defend them with the complacency of the environmental groups, politicians and technicians that govern the environment. Audition them, with the current purifiers, clean energy. About symbiosis, life on Earth would not exist if the bacteria did not work in symbiosis direct and indirect. How can we expect to protect the environment without realizing synergies between systems and processes? The public utility projects should be studied, in a logic of global environmental purification. As we shall see, this logic creates links that have escaped at all, that in the end, will lead to the overall improvement of the economy also. The water in depurcogeproduction plays the most important function, working in a cycle semi closed, or open, depending on the availability of the same. According to the management of CO2 and the plant we do, we can enrich the carbonate salts that we send to the water and desalinating sea water from the sea. Only the possibility of being able to do these things should open our hearts and minds. We'll see if it will happen. Both the storage of limestone, both transport exchange resins in the ponds, both tillage and crop requiring the evacuation of the transport systems and processing automation validly used for years in other areas. Nobody ever thought that these systems could be together, not even myself, before embarking on this arduous undertaking. If we think of

all the sectors connected with the DCPTCG not exaggerating when I say that we can create in the world a billion jobs, not ephemeral, but useful to the maintenance of the operating conditions to ensure the continuation of a decent life even at future generations. I wanted to work with a public environment and energy, even a large company would have been fine. I tried to anticipate what I could, through various publications, but in this country who do you consider a simple pensioner? I do not feel no envy for those who have made a career in this country. Rivivrei gladly give my life, convinced that thanks to the fact that he was always at the forefront, always hovering in the struggle for survival, to sixty-four years I know still work and still make proposals which require hard work, technique and creativity. If I had heard falsely satisfied by money earned clean energy and protecting the environment would never invented. Despite invented it does not mean that it becomes a reality. I am writing this book while filing four patents on these topics, which could have been many more, also claiming the details. I put them available, like its predecessors in the environment sector, the growth of this country. I hope that the ruling class, which deals with energy, is more competent than the one that takes care of the environment. It’s up to them rise to the occasion. If they want to make them become a reality, extend them abroad over a period of one year from the date of the deposit, creating job opportunities in the World Italian that we will honor. Personally, I can not do more. The environmental problems, at the moment, take a back order because these projects, published in this book, spent a year abroad, everyone can copy them. If it will happen, however, honored and still not be paid for my work. Better to be copied and not paid and unpaid who snubbed. These are the alternatives offered in an environment without a master inventor. I’ll be sorry, especially, if I can not contribute to the growth of this country. I say still hoping to be proved wrong.

Today is wasted immense resources and management works that have never proposed the comprehensive protection of the environment. These works are the totality of the heating systems and water treatment plants, so far realized, they should be closed immediately, while you continue to build, complicandoli further with useless palliatives. The closing of the circle of carbon obtainable with the global purification can not be replaced by the sum of all current energy systems and water treatment plants, because these systems are not integrated with each of them, in fact hinder each other. The new energies are neutral but not sustainable, and we need sustainable energy and protecting the environment. I would ask the economists who govern us how much it costs us Italians a patent on topics of public utility ENEA, CNR, of UNIVERSITIES, including salaries, research and experimentation. Probably, even the most modest, no less than one million euro. The patents of private companies certainly cost less but rarely solve problems of public utility. However create jobs. Economists who govern us, powerless in the face of lack of growth, I would ask because in this country you snub the patents of private citizens that do not cost anything to the community and may also create wealth? Those in the public interest, in particular, regarding the environment and energy, with non-commercial proposals, should be at least deign to answer the relevant ministry. With the transition of responsibilities from the state to the regions have not increased the responses in these areas but only escaping from responsibilities. I did not find interlocutors even in the regions. All with attitudes by experts but only want to manage funding environment and energy, choosing, almost like a catalog of the plants to be built. This is not possible today in any part of the world, let alone in the Italian regions. The chief defect of all systems, whether they are thermal, industrial or purification is what no one closes the carbon cycle, the second is that many produce acidification of the environment, the third is that they produce a lot of dust, more or less subtle. They are all solvable problems and be

faced with the global water purification systems that I propose for a few years as a citizen of the world, without a company and a country behind. Thing that can happen only in Italy. It ‘been a miracle if I got too clean energy and protecting the environment. It will be another miracle if I can get to the right people who can understand these projects, overcoming the bureaucratic environment and energy.

In the whole world no one has been able or willing to put together systems that allow for simple synergies that occur, at a minimum, would double the total returns, eliminating waste. Not having designed the systems in view of these possible synergies in the world and the environmental energy is almost everything to be redone. We can not keep the plants under the current conditions, wasting resources and continue to damage the environment, not to recognize the mistakes made. I think I’ve made enemies in the constructors of machines for the environment do not need. I do not want to make enemies Ministry of the Environment, ENEA, CNR, Regions, Harp, AATO who have not responded to my previous environmental proposals. Objectively, they could not see closer ties between systems that only the undersigned has highlighted. Neither the college textbooks, nor the slightest hint existing plants in these links. However, in the nature of these links exist. These public facilities, have not seen and have not been able to hear. Have not responded. If you have not understood the value of the public sewerage purification and criteria of the overall treatment means that they did not understand what should be their role. It is possible that there is no difference between their environmental policy and the one carried out by multinational environment. The latter can not make a long-term industrial policy. Their profit must be immediate and can only be realized through the sale of plant and machinery. Who should set the protection of the environment has to do it seamlessly between past and present. The men and multinational pass, the Planet, nations, cities

remain. The designers should have a public training and preparation other than private ones. Less specialized but more extensive. Only devoting an entire book to these topics with examples and drawings, I can hope that, in addition to myself, others begin to understand that the public environmental design must be very different from that of the multinationals. Before being snubbed by those who deals with energy in this country, I wanted to write a book that highlights the environmental bonds that have neglected. Only by radically changing the policy of protecting the environment would be great savings in the production of energy. It will be understood that the true clean energy is not the solar or wind energy or nuclear and even hydrogen, is one that fully closing the carbon cycle also purifies the environment. I have a problem with the magical recipes on the growth of politicians and economists based on nothing concrete. Only on financial trickery, taxes, pension reforms, fight against tax evasion. Their inventions are to find new things to tax. Do not excessively disturb the rich for fear that bringing in the money abroad further exacerbate unemployment are recent cases Fiat, Ilva, Alcoa, Omsa, Thyssen Krupp. Nobody noticed that the most powerful industries in the hands of public. It never went into operation: that of protecting the environment and the actual production of sustainable energy. This would be the industry with the largest number of employees, because the anthropogenic carbon cycle must be terminated on the ground, not in the atmosphere. This is demonstrated by the large numbers reported in this book, concerning, in particular, the energy wasted.

Assuming the current state of the art in the field of energy and purifying it allows you to keep up, skillfully and technologically complex and expensive processes to create profit to those who manages and designs, while the environment and the economy loses out . Something is moving in the right direction with the bio energy and cogeneration plants but, as

usual, the designers have stopped halfway, without recovering heat and CO2 and proposing small plants that do not affect the overall system. For this I would like to insist on the systems of global purges of which I speak, unsuccessfully, for about three years only seeing them grow in my mind. The technology, of which there is a great need in this area, can not completely replace the imagination. A lower level of technology, from the point of view of environmental chemistry, applied with fancy techniques of industrial automation and environmental engineering works could have vastly superior returns. The specialists unimaginative continue to dig deep, wasting resources and hoping to find something that is not there and will never find, if not change the direction in which they dig. The existing thermal plants do not exploit the advantages offered by the region, only use them for production and to cool turbines, condensers, rolling mills, and then waste heat transferred to the water as if it had recovered greatly increase the overall yield. The same applies to the heat transferred to the fumes. In fact, the efficiency of energy conversion does not exceed 40%. Realizing the cleaning energy with the CCS, which also neglects the recovery of heat, this performance, as mentioned, will subside further 11% in the case of light fuels, and 30% in the case of coal, but if we add over 100 $ / T provided to bury the CO2, the energy cost will increase even at least 30% becoming increasingly unsustainable, apart from the fact that the resources should be towards exhaustion. This is because it is the wrong approach to solving the problem by focusing on fuel and not on the plants that need to be modified and extended by recovering heat and CO2 to increase the efficiency and clean energy.

For those who work in the industry purifying the problem of global warming is the sole responsibility of the energy sector, and for myself the most important part that should make deals with the treatment of the water. When I suggested to those involved in the purification of cover plants to avoid

their own CO2 emissions nobody answered. An invention is useful important when the community perceives it as such. It ‘s the case of the electric light, radio, telephone, television. cars, computers. The other inventions, the ones that the community can not perceive immediately, they must first fight the income position of the experts, who have a vested interest in not changing things. He knows something even Galilei even arrested and forced to renounce their important and fundamental discovery. How will this majority hostile, powerful and silent in the face of “global depurcogeproduction thermalcovered”? This new invention does not admit separations between the purification of water, air and energy production. Luckily, in this case, a corporation could gain. Of course, I am referring to those who still insists thermal power stations that could go from great saviors charged to the environment, the economy and employment. Since you can not argue with those who do not respond, and not having understood, despite my sixty-four logic that governs the world, I decided to summarize in a book the various aspects of my thinking environmental plant, grown in yards, not in conferences or in design studios or universities. I will just write, above all, of the unsolved problems that most struck me, through which I came to these conclusions: the plant deficiencies in environmental protection and in the production of energy, especially, of the plants that I have not seen achieve. Mine is not a destructive criticism because propose solutions, criticism and comparable with the current solutions. No one to date has wanted this comparison. I am convinced that poorly designed systems, operating twenty four hours a day, 365 days a year lead to the deterioration of the environment much more forest fires and volcanic eruptions, which are occasional and from whose ashes and lava can be born new life. Allowing the arrival of acidic water to the oceans and atmospheric CO2 acidifichiamo the entire planet. Problems can not be solved separately wasting resources, well-designed plants can save the World from pollution and global warming, provide input for the future

world population, despite the exponential growth. Against population growth is little they can do the current systems of energy production and purification, likewise, the populist wing environmentalism and the opposing super technological solutions marketed by multinationals. I had almost completed this book when there was the case Ilva Taranto, who confirmed that environmental policies are wrong: industrial, energy, purifying, despite major technological advances. They are wrong because strategically focus too much pollution in one place, without checking whether that place there are the environmental conditions to neutralize it, they are wrong purification systems that start late and stop before completing the complete neutralization of pollution, are wrong the thermal energy production that have low yields and pollute the environment due to waste heat and CO2, which should be, both, retrieved and used in the process itself. The case of Ilva would not have been born if the company had not exaggerated with a gross pollution, visible to the naked eye. But it is not pollution coarse and arrogant I want to talk, but to the more subtle, that no one sees and no one disputes. What comes out of chimneys, sewers, treatment plants, industry, agriculture, power plants, incinerators accepted by the legislators. Quest'inquinamento institutionalized and accepted, more than the occasional one of those who break the laws, wasting vast resources and is leading to acidification and warming the entire planet. The purification solutions adopted, although they are complex, expensive and artificial, are incomplete. Do not close the carbon cycle, do not take the opportunity to do prevention, do not create the job opportunities that might create. It 'also broke the case of workers in the coal mines of Sulcis who prefer to live four hundred feet deep, rather than starve in the light of the sun. With depurcogeproduction even coal can become competitive at no additional cost and without losing a cent of return, recovering the CO2 to produce useful carbonates. It 'also broke the case of Alcoa, where the cost of energy in Italy forced to shut down a company of American avant-garde

technology, while the former Thyssen everyone wants and no one gets angry, especially because it is in Italy, where it costs too much work and energy. The latter burdened by costs for finance, not research, but the production of energy is not competitive. Unfortunately, these are the consequences of the lack of competitiveness of a country super bureaucratized, such as Italy, where until now been lacking even the reference points to make proposals for growth. E 'need to look at all costs, environmental solutions and sustainable energy and universal, to be shared at the international level, that put all countries on the same level of competitiveness, giving priority to environmental protection. The state of the art for a long time make it possible to develop cleaning solutions globally, but the insiders are afraid of these solutions that could bring down the market of machines and systems that they built to get little results in environmental protection. Environmental authorities prefer to entrust the solution of the problem CO2 energy sector alone, rather than questioning the whole system. If the problem is solved as the energy sector, there would be no glory for the water purification industry. Could continue the ignoble market. But things are not that way. Summing up the results of two separate sectors will add only errors and costs, not benefits. Putting together the facilities would occur from symbiosis plant that would allow the completion of the carbon cycle, now interrupted by the early withdrawal from drainage and chimneys. Around these new plants would be born induced activities that would provide the raw materials (limestone, calcium oxide biomass, biowaste, coal, oil, natural gas) and other activities would use the finished product (energy and compost for agriculture), others for the construction of civil works, other industrial automation, because the plant would not be managed as a purifier or a thermal power plant, but as a huge industry. The waters that come out from the ski should be to counter the acidification of lakes and seas, but it could also be the other way, if we want to sweeten the waters for agricultural use of the sea. But the potential is still more immense. If

instead of fossil central starting there was a large non-energy heating system (ILVA case) or an incinerator or a production plant of calcium oxide, or more plants that produce and disperse heat and CO2. These systems will continue to do its job, giving the hot water and smoke to those who stand beside them to produce energy. So also the policy of industrial zones was wrong, creating systems which can not purify and recover wasted resources. You should also understands that to achieve these great works and manage the amount of work needed will be immense and will require a job equal to that industry. Indeed, the industry itself must provide the control systems, automation, internal transport, tillage, fans, pumps, blowers. Will be used essentially intake structures along the rivers, greenhouse buildings in the city and out to the purification of water and air. It will be necessary reorganization and redistribution of power plants to incorporate environmental protection. While the world mourns for the rampant unemployment, no one noticed that the industrial revolution waits for at least fifty years to be completed with the part concerning environmental protection, never started. The global economic crisis, in the end, had to burst, having developed only production systems, based on the consumption of resources, neglecting the production of man-made recirculation circuit. Only recently people have realized that you have to recycle everything but to do it properly we must be able to put together the systems. You can not call what we do through recycling incinerators, digesters, composting, while treatment plants and thermal power plants are somewhere else. In this way, at least, continue to escape fine dust and dioxin, but above all, the warmth and CO2, which could be of valuable resources. What is worse is that the CO2 they would like to bury it while recovering heat do not think about it either.

After this publication, there should be no doubt about what I was getting when I wrote of strange purification systems that

do not exist and for which no one wanted to talk. I had to write a book, having established that the overall purification illustrated in small doses, it did not work. When and if politicians and technicians, who have deservedly or undeservedly privileged positions to be heard, will want to address these issues, not strangers but neglected, you can write works much more important than this book that talks about new solutions but simple in the sustainable management of 'environment. The wagon is very much more political and technical will rise the greater the chance of cleaning up the environment and the economy. The answers, I think I've given, go far beyond the questions I asked myself when I began to study these problems. Involving desertification, hunger, unemployment in the World. What of the large amount of compost we produce if all the thermal power plants become depurcogeproduction, if you do not return it to the earth to restore the resources stolen? I will not be a source of pride for these solutions, I only tried to copy in the works on the universal cycle of carbon involving water, air, CO2 and rocks. It should be the contribution of all to close the carbon cycle and give full meaning to the consumer society. We can not accept the game of multinational companies who want to cheat by closing the carbon cycle through expensive palliatives such as CCS and artificial trees, addebitandoci risks and costs, without solving the real problems of global pollution and preventing people to participate in the solution to avoid creating that occupation that would also lead to a more equitable distribution of wealth. Environmental protection can not continue to be made with incomplete installations. We can not accept to pay salted energies than cleaned, while we could have competitively priced clean energy and environmental protection. It took me six years to find these solutions and to write this book. They may seem like a lot but they are few when you consider that over a hundred years since the advent of the first sewage treatment works and the first one hundred and thirty-fired power plants, waste more than 60% of the thermal resources and the real protection of the environment

has not started yet. With depurcogeproduction all countries could produce clean energy with what you have, especially energy crops but also waste and coal, without depending, of necessity, from oil or from new energy, if they are not competitive. Cleaning can start the exit of chimneys without yield losses of fuels, as it would with the CCS If men will be wise, will adopt this system and will save you even when the hydrogen fuel will become a reality because more clean energy, we need the closure and the abbreviation of the carbon cycle.

2) SUMMARY OF SOLUTIONS

All that is environmental science has already been invented by nature. Not all, but most of what technology has already been invented by man. We just need to put together the two best things to increase yields. Many things we can already make them and we do. Unfortunately, many others do not do. We have entrusted the nature of the closure of the anthropogenic carbon cycle for which it is equipped. The carbon cycle natural, nature complete with the very long time that the man can not afford to wait. And ‘This is the case of the depuration without alcalinizzazioni, without neutralization of combustion of CO2, the heat released into the environment without being reabsorbed to produce new energy. Without addressing and solving these three greatest problems everything we do for the environment is only a palliative, as the degenerative process in other ways and other places continues, although disturbed by partial treatment. For this it is necessary to speak of a global purification: more present on the territory, involving air, water, heat and energy in the same facilities. Personally, as a simple technical plant engineering and environmental, I believe that the proper management of resources can only be achieved

through small and large plant engineering works that go to the rescue of the management and protection of natural environment. Let no one say that the current environmental systems are already working in this direction because no existing plant, industrial or environmental closes on itself the carbon cycle, even in part. It may seem strange that the first to speak of the possibility of accelerating the closure of the carbon cycle is a modest technical plant engineer, but this work is the only one that allows you to combine the solutions to problems, without going through hierarchies and bureaucracies that manage ‘ environment and stifle innovation in the bud. Too many personalities collide on environmental strategies to be adopted: chemists, biologists, mechanical, hydraulic, geological, environmental, political, etc. .. It would be much easier to entrust the proposals for plant engineers who know the shortcuts, and then discuss the details. To plant engineer mean that someone puts together the systems, not those who design them in every detail. The plant engineer must create the suitable environmental conditions so that they can be more than one job at the same time, making the most of existing technology for the recovery of resources and to increase returns; must already know what you can do and not do in terms of structural, mechanical, chemical, biological, delaying the aging of the details to specialists, but at a later stage to the design of the facilities. A little ‘as in science fiction films but on a more practical: putting together existing systems and processes. With these convictions, I found myself envisage plants “depurcogeproduction global thermalcovered” (DCPTCG), after passing through proposals for new systems purifications: domestic sewage, covered, overall, to which no one wanted to believe. Probably, someone would believe it, if the Ministry of Environment, or scientific research, he put together a panel of experts, handsomely paid, for months or years, to pull off these solutions. It is not true that you do not look a gift horse in the mouth, simply do not accept. I am too proud because accept. They are practical, they do not believe

in miracles. In a field so important to the solution of the problems can not be accidental. But who said that it is? For years, I work without having authorization. If the fees of the world these solutions do not have arised, probably, without following a single thought, could not be birthed. The shortcut was to assume operational purifiers covered, invented by myself, paradoxically, not acceptable to the European patent for lack of novelty. To get them to accept much should I spend money that I have and respect their bureaucratic form. Where the words used are worth much more concepts. I have no strength to fight even the bureaucracy, I just have to be the inventor of morality. While their dispute bureaucratic loopholes purifiers I've exceeded technically covered with buildings FSV, which also will find ways to challenge bureaucratic. Whether we believe it or not, the lords of the environment, from these facilities do not exist, challenged by bureaucracy and politicized snubbed by the technicians is the confirmation that everything in nature is connected. What is not confirmed by the treatment plants of water, air and energy existing, completely disconnected from each other and can not be connected. Indeed, the side effects of the processes that occur in these systems, in some cases, create environmental and economic damage so extensive that it would be better to give up the progress and return to the past. But the plant environmental synergies are possible, even if nobody talks about it and no one taught in schools, including universities.

The cleaningcovered was easy to get to depurcogeproduction global thermalcovered. The DCPTCG is much greater than the sum of a purifier and a central thermal power station, which would already be a lot more of cogeneration, consuming CO2 and heat recovery. Nothing is created, everything is transformed. From the land and the sea we get the nourishment even when we will be more than nine billion. The optimum solutions, until now, have not been identified because it was the wrong conception of environmental protection separate from energy production

and infrastructure have not been created to harmonize industrial growth and consumption with the management of the global environment. According separate these areas, wasting vast resources and damage the environment. Only as a pensioner I noticed this glaring truth. But the big national commissions and world that make conferences and write reports for many decades, how did they not notice? Without great works, purifying and protective of the environment, capable of producing energy through proper management of resources, it will be very difficult to manage the poverty which we encounter. The economic crisis in Europe and America, as well as by financial bubbles and stock market speculation, is mainly due all'improrogabilità of sharing the wealth that we have created, with poor countries that have not had the same opportunities for growth. It 'obvious that sharing the wealth and the space available, it becomes all the poorer and you're less comfortable. The majority of us have very little to share. It is not worth to defend the position. We can only fight to defend the environment in which our children will live. The environment, fortunately, can apparently only be limited. The rich have the illusion of choosing cities and even neighborhoods where people live better, but sooner or later the pollution reaches everywhere. We should learn to better manage resources, increasing efficiency and productivity, above all, protecting the environment. Only in this way can not avoid, but at least contain, wars and jealousies among peoples. The inability to search and find solutions to share prosperity is leading us towards the social and economic abyss. The thinly veiled threat to move production facilities where labor is cheaper and you can pollute more freely, should not be permitted by any sovereign country. Environmental laws must be universal. But how can they be, if no one wants to talk about global water purification? We must be mistaken, either by moving men poor where there is more wealth, either by moving the factories where there are poor people and less protection of the environment. The deck of the economy is too short to cover all

the resources mismanaged aggravate the problems. The most developed countries have also made the mistake of wrong export growth, based on consumerism wrong. This growth has been built without the fundamental basis of environmental protection. E 'was based only on productivity. One has to wonder how many countries would be happy to take on an establishment such as Ilva under current conditions and how many cases there are even worse in the world and no one dares to protest. Industrial productivity is environmental protection are not well integrated. You could say that myself, who for twenty years has been involved in industrial manufacturing facilities and for another two decades of plant protection. The emerging countries are in a hurry to grow up, do not have the time to study new solutions. Copy all that we invented in the production and in the environment and surpass us in terms of competitiveness and creativity. Unfortunately, even the copy protection systems environmental and energy that have never been suitable to protect the environment and to recover resources and always will be less with the impressive growth of populations. The greater creativity of emerging nations is all geared towards increased productivity. The weaknesses in the systems of environmental protection, already inadequate, are accelerated from the chaotic growth of resource consumption, without anyone knowing where to put your hands. The masters for fear of losing economically or reduce profit margins, hampering environmental innovations that do not concern them. I hope that things will change when political masters and designers understand that thecovered can be expanded without pulling to one side and the other. The production efficiency can be purifying and protective of the environment, but can also be economically and socially convenient, considering that are necessary to achieve great works that commit human and capital resources, contributing to a better distribution of social welfare. Environmental laws and solutions should be universalized and designed to combat global pollution, not the local one, as happens now, at the expense of the former. The plants that do not meet the

eligibility criteria to be considered “global” should be banned. Namely all the current systems that do not allow changes of adaptation. The situation is desperate, but not hopeless. The biggest obstacle is the hypocrisy of the experts, who pretend not to understand basic concepts, continuing to speak only of their useless local solutions. The word “global” you prefer to pair it only to the economy, to a maximum of warming due to CO2, never to pollution, nor to purification solutions inadequate.

The global pollution is caused by carbon leakage and heat into the part of nature (natural causes and accidental) and by human activities, in quantities greater than those absorbed. But even those are not absorbable painless in the long run, if the absorption produces sediment and fossilization. Some scientists argue that global warming does not exist. For them, the real cause of climate change is the increase in solar activity, through the famous “sun spots”, and other natural phenomena. The opposing factions argue, as doctors at the bedside of a patient who, meanwhile, is dying. I do not know who is right, but I’m sure that men are doing everything possible to aggravate the situation, if those who govern the environment, continues to believe eliminating need for its protection (male) only the water that we use for urban and industrial, forgetting the air and above all, global pollution, which requires a great involvement of fresh water in the purification processes and energy, not only the urban and industrial waters. We can do nothing against natural phenomena unrelated to the planet but we can do a great deal to strengthen the natural defenses of the global Planet Earth. The solution to global warming or pollution is the same: “Detox globally,” of which I speak in vain for some years. What is the CO2, if not a nutritious unwanted, like phosphorus, nitrogen and organic carbon? Photosynthesis converts CO2 into organic carbon by increasing the production of unwanted plants, especially in water, producing sludge,

which can not be extracted, consuming oxygen in the waters and lead to acidification the entire basin or even the seas after thousands or millions of years. As the water pollution and land increases, also growing greenhouse gas and steam to the atmosphere, in amounts not fully absorbable. Therefore, we should speak of a global pollution of the environment that must be fought also in the local purification solutions. If people had about the functioning of the natural cycles of water and carbon, they would use the technology to strengthen them, not to create treatment plants, landfills, incinerators, CCS and artificial trees, which together can be defined as the expensive palliative environment. You would have noticed that prevention is better than any cure and that none of these systems for environmental protection, not even those of the latest generation, closes the carbon cycle and provides carbonates to the water returning to the sea. The strengthening of the natural protection system, which could be called, well, “purification global”, would help to neutralize the source dispersion inorganic and organic carbon and other nutrients and pollutants created by man. We must not forget that global warming and glaciation are natural phenomena that have already occurred, and other consequences will ensue, but the men with the pollution and can accelerate them with the clean-up delay. The latter type of activity, which would involve at least a billion people, is not among the favorite activities of men, who are also in crisis throughout the planet for the labor shortage, due to lack of ideas to put into production. What better energy production and the environment? I do not think they have deliberately neglected this area. We simply believe that more than they do, they can not. They make less than the hundredth part of what they might do and waste more resources than you can imagine. If you do not want the CO2 we produce eutrophication purify and carry more carbonates to the water and we can do it only through the waters flowing in the rivers, in the sewers, in the treatment plants, and especially those that pass through the thermal power plants, which are thirty-four times superior to those

that pass in the treatment plants. It will have to go even further to strengthen the natural defenses of the environment. The means of transport has remained the same, even if the world is no longer the same, at least since the advent of the industrial age. Water can not simultaneously carry carbonates and pollution. The organic and inorganic substances, in excess, must be neutralized at the source if you do not want to continue to sobbarcarci higher costs, as we do now, with sewer systems and water treatment plants, not adequate to protect the environment. The carbonates are necessary to balance the acidifying anthropogenic activities shall be prepared and artificially dosed in plants that do not yet exist. But the experts continue to study and implement expensive palliatives, if you do not make the situation worse, steal huge economic resources and delay the real recovery. The air cleaners are even emitters of CO2 and the laws that allow discharging acidic water with pH 5.5. It supplies oxygen to water, but more than 60-70% of that oxygen was lost in the sewer system. Can we afford such a waste? 50% of the CO2 we produce with the oxidation being outdoors in the oxidation ponds is reabsorbed again by surface water, in other places, to generate new pollution (eutrophication). The rest is absorbed in a hundred years (even on these days there are different opinions), but always producing the same effect. Can we afford this other inconsistency? With the D.C.P.T.C.G. we may finally stop weave the web of Penelope environment. The environmental managers should, at least, agree to discuss new ideas for environmental protection. Instead of continuing to consult their professional advisers only, the same as they were recommended in the previous errors. A few years ago we could compare the normal purifications with global ones. It may seem strange, but we have not done for lack of interlocutors who defend the current purifiers. There was no need to defend them. The global purifiers were not even considered by the ruling class. I could insist on writing other articles and citing other reasons. I preferred to go to work, dedicating time to communication only when I had ideas

to develop. Today we can compare, in addition to cleaning even the “new energies” with an “energy production in protecting the environment.” Although this may seem strange: the energy in protecting the environment can be achieved through the current disputed thermal power plants and the recovery of CO2 mistreated. Were not the authoritative silences received updates slower, but the time needed for the preparation of new projects. Do not insult such delicate matters without a project on which we can compare. But you may feel respected world experts on climate, environment, energy and power that continue to publish tables and alarming data on the state of the environment and the economy, while silent on the concepts and sustainable projects and are ready to support any solution proposed by the multinationals?

It should be a world government for the management of environmental and energy resources. No one has the authority to apply for this management. The I. P.C.C. (Intergovernmental Panel on Climate Change, the Intergovernmental Panel on Climate Change, put together by the UN), awarded the Nobel Prize in 2007 with Al Gore, for his work in spreading knowledge on climate change, after the award, has undergone many international criticisms on the political and scientific not entirely unjustified, judging by concrete proposals. It ‘s really the case that between saying and doing is half the sea. At this rate, the demagogues and environmental associations that have failed to defend the natural trees will be forced to rely on artificial trees owned by the multinational “so and so”, which will be accompanied by solar panels and wind turbines of other multinationals, while drinking water will be managed by yet other multinationals, the depuration will be entrusted to others. The eutrofizzazioni lake and coastal areas will continue to advance, the drains will continue to be the daughters of anyone because the degeneration must subsidize the sewer treatment plants that will continue to absorb resources that can be avoided and emit CO2 into the

atmosphere, as if the “covered purifiers, sewage, urban and coastal lake “that would consume the CO2 and nutrients they had never been contemplated. Certainly have been proposed in the wrong country. Where the political class and leadership is in constant struggle to achieve the highest gains with minimal effort, while the country is drifting by at least thirty years. The air cleaners have covered the serious defect of not using the machines produced by the multinational environment and a thriving market for palliatives that do not affect the true environmental remediation. Strangely, I am convinced that the protection of the environment do not face with machines but with the prevention of degenerative phenomena, photosynthesis and alkalization in covered, especially involving large flows and water surfaces. Everything must be done in a modern way, that takes advantage of the progress in the construction industry and technological innovations, to enhance returns. I am not opposed in principle to the multinationals and I would not, from simple technical executive, accustomed to the concrete, to talk about these important issues, if I had not noticed for years that this system can not work. It ‘clear that global environmental managers do not escape the main environmental problems, but for obscure reasons beyond the solutions that are more simple than you might think. Probably, they are misguided by the designers of the current facilities, which have snubbed but not commented purifiers covered. Among these designers, nobody wants to close the carbon cycle, use photosynthesis, purify and alkalize at least a small part of the immense amount of water going to the oceans. These are, in summary, the solutions to environmental problems. If I say nonsense to say that forty years of experience industrial plant engineering and environmental controls are not enough make me understand why a plant thermal climate, albeit with some variations and large, does not work. In this type of system could assimilate the plant world that, in itself, already does not completely close the carbon cycle to natural phenomena and to which human activities, accelerated with the industrial age, they added

other productions of carbon, nonabsorbable, of course, by the system. But it is said that they are not absorbable by the same system if, as I propose, we strengthen the potential of natural and biological pumps thermohaline with artificial implants that will increase the opportunities for contact between carbon, water, limestone cliffs, light, oxygen and nitrogen. Increasing the purification and the alkalinity of the water that we send down to the sea, not only absorb all the CO2 product, including energy, but also reinforce the ocean currents, the natural defenses and the world economy for the work activities and the ‘ impressiveness of the necessary works. These things they can not do the existing installations and even the artificial palliatives that multinationals are studying under the auspices of the IPCC and consequently, the UN. Can not do so even the new energy that does not participate in the closing of the carbon cycle. The World Environmental Authorities, multinational corporations, public and private planners, despite having understood the source of the problem, proceed in a particular order to address the problems of global warming, which would require a common environmental policy. For them, the CO2 must necessarily be captured, pressurized and basement. It matters little whether as a result of an earthquake or other cause can get out of the underground in high concentrations choking populations. It will be a collateral risk in the name of science. What is science? Science has nothing to do, it’s just a matter of environmental protection systems that have not been able to design. The Living Planet report, the final report of the World Wide Fund for Nature, says that human behavior towards the planet and ‘become unsustainable. Now we use every year more than 50% of the resources at our disposal, affecting those of the following: according to Jim Leape, WWF Director General, if current trends do not change, in 2030 the two planets may not be enough. We are continuing to milk a cow that becomes thinner and produces less milk. We pay immensely veterinarians who are not aware that the cow should simply eat. You could stop this slimming Planet producing power and

energy from the recovery of lost and unsuspected resources: mainly CO2 and the immense amount of waste heat to water and air by power plants, while protecting the environment and creating different plants energy. Although he spent his entire life to install industrial and environmental was the first to feel useless my modest contribution to the immensity of the problems. However, as a pensioner, I wanted to revisit “with hindsight” plants that I have encountered in my long and modest professional activity. For years now, I invite comparison to the experts: engineers, researchers, professors, politicians, environmental groups, plant managers, on small and large projects, alternative to current systems. I get only silence and shrugs of super specialized people, who do not want or can not discuss issues of global security environment, without a script agreed with those who pay them. Everyone has a boss to be respected. I myself if I were not a pensioner I could not freely criticize the facilities, to live, installavo. I was not a hypocrite. Only in retirement I had the time and ideas to improve them, without being invited to do so. Quite the contrary, it seems to have touched the untouchable sanctuaries that do not need defenders. Only a revolution could scalzarli environment. Today, especially, in Italy there is much talk of reducing the cost of politics, the civil service, social works, but no one speaks to detect technical errors, sucking millions of dollars per second, twenty-four hours a day, 365 days ‘year. And ‘implied that updates should be automatic with the adjustment of the state of the art in all the sectors concerned. Nobody noticed that there are some areas in which we have never put my hands and others who consider themselves untouchable sanctuaries from the technical point of view, which, however, should urgently be resized. When we got to the global economic crisis, ocean acidification, melting glaciers must also touch the foundations of the shrines that are considered untouchable. First of all, we need to change the environmental protection systems, which are only a small part of the work we should be doing. In the treatment plants must circulate a lot more water

than at present, along with the air and exhaust fumes so that municipal and industrial water purification and globally. The bod and Cod, will be cut down automatically consuming the various nutrients along with the CO2 in indoor facilities that function as greenhouses. The water should not be discharged, but recycled in biological ponds vertical (sbfscv), depleted of nutrients and enriched with carbonates until it is integrated with other water rich in nutrients and low in carbonates collected by the sewerage system, or working surface. In the cities, polluted air with fumes, should be withdrawn from a parallel sewer system, filtered, compressed and distributed in the environment of buildings synergistic vertical FSV to consume CO2, producing biomass. Consequently, the polluted air will not come out from chimneys, but from greenhouses and will be depleted of this gas, but also other gases, which are present in smaller percentages of dust and, more or less thin, while the water will be recycled and used for irrigation of crops, it will be purified in the same biological ponds vertical. In these new global facilities, will also involve the cooling water and flue gas of thermal power stations fired by fossil fuels or biofuels. It does not take much to understand that the current system does not work and can not work, not integrated with the new energies, with artificial trees, and the burying of CO2. If anyone understands the importance of these simple suggestions, it means that even the scientific world suffer from dark evils. Mainly because it has been silent on these issues while having the authority to intervene. Just to try to understand the reasons for such silence, I came to DCPTCG that could be the source of true sustainable energy production. For the same reason I came also to the “greenhouse manufactured vertical” (FSV), which could also open up new avenues in the food industry, in view of the increase in world population. “Everyone is convinced that something is impossible, until it reaches a fool who does not know and the true.” I have mentioned, unworthily this famous aphorism of Albert Einstein, to say that I would be one of many “naive” who believe in the

“purification global” because to achieve it, we need a lot more naive, more powerful than myself. The publications of the undersigned, preceding this, attest that I did not arrive alone to propose “the depurcogeproduction global thermalcovered.” It would be enough that some scientist or some author of books on environmental treatments dissuade me from continuing on this path, using scientific arguments, and personally, I could not find. None dissuaded me and no one encouraged me. I was just snubbed. From only car I tried to criticize my intuitions, but I found only confirmations, such as laws and Henry Dalton on partial pressure and solubility of gases in water, photosynthesis invented by nature, natural phenomena equally, such as karst consuming to produce carbonates CO2. What I propose is a waste water treatment system, energy and food production, supplementary, parallel to the natural one, in which you will be able to concentrate production more intensive and polluting, recycling everything, including heat and CO2, without affecting the natural resources, if not to supplement what has been irreversibly transformed, since nothing is created, everything is transformed. It attingerebbero by nature only the water consumed by the system. The sludge produced and the plant biomass, by different routes will go to the “global depurcogeproduttori covered” (DCPTCG), which still no one knows, to produce energy, while the water that will be discharged will not produce eutrophication, but will serve to reinforce the oceanic alkalinity . Of course, this program may seem very presumptuous. Who is more conceited? Anyone who criticizes a system that does not work, studies and proposes solutions, without appointments and remuneration, posting in the sunlight? Or who is silent, but it was well paid for their advice and perhaps also for the silence. These gentlemen do not want confrontation. The future ahead with investment funds that require environmental managers is to install many more plants copied from those of today, regardless of the huge gaps and the large consumption, supplemented by new energy, CCS and artificial trees. Who will fight ocean acidification? And the

eutrophication of water bodies? Clean fossil energy? It recover environmental resources dispersed? What is strange is that many people know that these solutions can not be, but equally silent on the “purification globally.” Those that too kindly, I define palliatives, they are not harmless. At a minimum harm the economy, often harm the environment. However, if someone wanted to stop the proposed “comprehensive treatment” would have to do it before she had given birth to clean the thermal production, combined with alkalinization and purification of water and air, with the production of biomass for energy and food. Now, this is also a reality on paper, put black on white, but still a reality. We can not continue to deny it, not even talk about it. If those who hold the levers of power, does not want to be cured of environmental problems can not neglect even the solutions through the treatment of the environment ahead in the world, the recovery of very heavy economic resources, estimated at thousands of dollars per second. The slightest doubt that he may have reason should be jumping for joy entire populations, however, was not spent a single euro in this direction. Those who, like myself, knows, though partially (forty years is not enough), industrial production facilities, environmental and energy, he knows that there are systems that do not work and are there any works perfect. Everything is based on performance. The concept of return that is based on the relationship between energy expenditure and that used for the purposes of work product is useful to indicate the limits of the systems and technology invented by man. Even a process invented by nature have a low yield. The secret is to increase returns SYNERGY SYSTEMS that has never been used. Only in this way can avoid waste and recover everything that can produce new energy. In the environmental field, no one noticed that covering plants and linking different environmental systems, the waste of one can become a resource for others and the initial returns can be added, producing more energy and purification compared to the resources employed. Before invent global facilities, all facilities environmental found a loophole to be acceptable,

since there is nothing better. No one claimed to subtract the CO2 to the environment through water purification, or to produce clean energy from coal, or to alkalize the water carbonando cold rocks or limestone aggregates, or producing biomass, biogas and composted in the same plant. No one was crazy enough to think of doing all these things together. These things, however, you can still do it because it was to propose a simple pensioner, which no one believes, despite appeals in Dalton, Henry, Lavoisier, and natural processes as old as the world. Insisting on these projects with new solutions, grow also hopes to be believed. Not by those who have huge skeletons in the closets, but by ordinary people. For myself it is impossible to continue to accept the current systems, which have reached the maximum efficiency, saving a trip to the hopes offered by global systems. It ‘s always a better chance of success than the certainty of failure. Prior to this experience I would not have thought that I would be forced by the indifference of the insiders get this far without a minimum of experimentation. I would have liked, like everyone else, work in silence, hiding the projects and, above all, the inevitable mistakes. I had to grow in the sunlight these projects with all the contradictions due to subsequent processing starting from the last row and with many penalties. The overall purification can not fail, although some details need to be changed. It is not based on a single project, but on a series of related projects in a sequential logic of protection of the global environment. A solution called the other. I got into a lot of detail, not to leave room for those who, coming out of long silence, might say: “Between saying and doing is half the sea.” Develop solutions and plant details is my job, but the details may also change. The ones that count are the global ideas that can only come if you are able to put together different projects, developing new details, and above all, intervening where ever it was decided to intervene, directly in housing, sewers, lakes, rivers, harbors, along the coast, catching the fumes and the warm waters of the thermal power plants, steel mills, incinerators,

verticalizing ponds and cultivation of biomass above ground and in the greenhouse. Anything can serve to protect the environment and produce new energy and jobs.

In the global water purification systems do not promise miracles, using a technology than the current one. It uses the technology of yesterday and today. Simply close the carbon cycle in the area: anticipating events, putting together more installations, covering them to avoid losses, so that the scraps of a plant can be used by others and vice versa, to produce biomass, carbonates or energy. These aspects, plain and simple, that no one has ever developed, are not reported even in the most enlightened university textbooks. Makes no sense to escalate the sewage in the sewers, producing hydrogen sulfide, in order to regenerate in plants, with unsustainable waste and CO2 emissions in the atmosphere, or by entrusting the machines recovery (to various types of aeration, oxidation, pre-and post nitrificazioni, pre and post denitrificazioni, pre and post chemical precipitation). No point in wasting the enormous amount of heat produced by power plants, incinerators, and the huge amount of CO2 that nature uses with success, along with rainwater, to carry carbonates to the oceans. Before the advent of the industrial system apparently worked, although after millions of years was, however, inevitable acidification. The acceleration of environmental degradation is not the fault of industrialization, but the plant design in the last fifty years has not been able to keep up with the times. These inconsistencies, which I did not notice when installavo plants, appear to me to be obvious reflecting pensioner.

In this book, written by someone who has lived through the environment, the plants that met in a lifetime of work, we report the preliminary design of a system of “global depurcogeproduction thermalcovered” (DCPTCG) combined with a

thermal power plant 320 MWh. From the above, we can give an account of what was really used to protect the environment, but also of spaces and volumes required for clean energy from CO2 and heat recovery. The proposed system is modular. On the same diagram it is possible to assume, in a linear proportion, plant dozens of times lower. Unlikely to be made larger plants than presumed, because, as I mentioned, the strategy of treatment is to achieve the overall system by checking if there are on-site environmental characteristics to completely neutralize the pollution. Do not count the criteria used now for the construction of industrial areas, because the current systems do not close the carbon cycle. The purification of water and air cooling of the same, that have not been considered in the design of existing thermal power plants and heating plants, in general, must comply with the laws of physics and of the times of contact between the components, which require the space and volumes required. E 'need to develop in height plants, to retain water until they can absorb CO2, calcium and magnesium, but if necessary, make the inverse processes. It must be recognized that were too simplistic designs of thermal plants, which they forgot to two fundamental aspects, such as the recovery of waste heat into water and CO2. Around C.T.E. and various thermal plants, you can build DCPTCG, as long as there are spaces, volumes and water needed. Nothing to be done, however, to the cleaners, they will never be part of the "global purification." I'm not offended if someone shows me that I'm wrong. Provided this is done in the light of the sun, comparing, above all, on the problems ignored and never addressed which only global systems may find a solution. To understand the DCPTCG, the designers of thermal plants, incinerators, co-generators, purifiers should leave the confines of their work and recognize that the system they have designed is not complete until leak into valuable resources and do not complete the the carbon cycle. At the very least, they should put themselves in the shoes of those who should connect the system to other systems designed to continue the process of neutralization of nutrients and

recovery of wasted resources. In the future, if we want to protect the environment and our reputation of technicians, all systems must be connected so that they can purify the used water, recover the wasted heat, close the carbon cycle without emitting CO2 in the atmosphere, derived from waste biomass and biogas to produce new energy. In practice, there must exist existing plants, but only plants widened. It seems strange that the national environmental authorities and international corporations, design studios, etc.. not have the desire of these links. It almost seems that the undersigned, after forty years of experience both a visionary environment. I do not think I exaggerate when I assert that the “global water treatment plants” simple conceptually, but never realized, as well as being a great tool to protect the environment and economies will also be a great tool of democracy. The plundering of resources and the wild extractions for the benefit of present and most importantly, the multinationals at the expense of future generations, have not allowed the birth and the rational development of many activities induced, that would have saved the economies delivering better jobs and wealth . E ‘was chosen the easy way out and there you are concerned nor recover wasted resources, or to prevent global warming. If we had followed the criteria of the overall treatment (involving the whole territory, the atmospheric air, urban water, thermal, river, lake coastal) in equipment design environmental, energy, food and industrial, we would have realized that you can produce energy while protecting the environment, which is much more than just clean renewable energy, which is useful but not involved in the recycling of resources and the prevention of ocean acidification, the main cause of melting glaciers, eutrophication and reduction sea currents. I tried to anticipate the concepts not to be alone to develop the ideas of purification global, not feeling up to such a daunting task. From the received signals, I had to change my mind and roll up my sleeves. I risked going through a false prophet, a dreamer. With my departure from the scene, it would have also disappeared global purification. It would

have been much easier if someone can maneuver, a team of designers, engineers, biologists, chemists, he had listened. Do not be offended these professionals, but the ideas do not come from the sun, are sown, fertilizer and cultivated, and not always sprout. Only after the shoot may intervene specialists. In the case of global purification were evident, not only shoots but different plants, in spite of this, no one wanted to intervene. After this new and most important publication, in which repeat ad nauseam the same concepts, it will be even more imperative to ask ourselves: where we want to take? A serving their complaints if they do not change the way we design the way you build cities, industrial installations, environmental and energy production.

When will the global water treatment, I hope not too late, we will begin to truly protect the environment, starting from some things already assodate, such as recycling, but reducing to almost zero landfills, incinerators, scrubbers, according to the current conception. Everything must be recycled or digested, closing the carbon cycle and consuming CO2 in the same man-made processes. So it should be understood the consumer society. Certainly, not as the actual implants, thermal and purifying which disperse heat from all sides and organic and inorganic carbon. The anthropogenic carbon cycles should be run in parallel to the natural cycle and close on themselves without emitting CO2 outside facilities. There is a great concern for the growth of world population, but following the principles of “thermalcovered depurcogeproduction global” even a large part of agriculture (especially the most polluting) can take place above ground, with higher yields, without polluting the aquifers and preserving untouched nature reserves. The compost produced by thermoelectric plants depurcogeproduction covered global (DCPTCG) will be the natural breeding ground of the production facilities “above ground” that will grow vertically to consume the CO2, producing energy and biomass energy that will be

consumed directly, without leaving DCPTCG. The composted in excess, can be used for fertilization of agricultural land with all the guarantees of hygiene. There will be a need to intensify the “crop land” that pollute ground. Probably not agree even intensify them, because they can not compete economically with those above ground, in vertical greenhouses, which can be made anywhere, they produce heat and CO2, as factory farm, more sustainable than those that grow in the field, always forced to polluting the water.

Too many things have been accepted with resignation in the purges, and in energy production, which synergies with simple plant, can be transformed into environmental excellence. The depurcogeproduction in the world will produce a few billion occupied. It is not an exaggeration, because it does not affect a single sector or a single country. All will be involved in daily recycling of matter that will automatically produce energy, environmental protection and power supply. The realization of these works and their management will require a job comparable only to that of the industrial sector and the same industrial technology will increase its turnover to increase the productive capacity of the environment protection and energy. The cost of these facilities would be largely offset by the recovery of the resources currently wasted by spaces recovered, even if we should not talk about up front costs to works with functions, above all, social. Especially the CO2 is a resource that should not be wasted irreplaceable underground. Wasted resources are also over thirty billion dollars spent to carry out projects for capturing and burying CO2 in the world, attended by Enel, Aeneas and our Ministry of the Environment, who has never agreed to talk of global purification. It is not democratic unemployment that is rampant in the world while there is much to do in the work of environmental protection, energy and food and in related infrastructure and mechanization of processes to make these changes possible. These cannot even begin if the

multinationals do not see it as an affair in “depurcogeproduction global” in place of the many palliative current and experimental. All the World’s country. The environmental authorities have not been able to organize the world’s environmental design in the true public interest. We are in the hands of private studies, hooked to the political and economic power local and multinational environment concerned with management and to sell machines that do not serve in the global systems. I have read hundreds of disciplinary notice of public contracts relating to purifiers, are merely adaptations of previous works that reproduce the same plant, despite the weaknesses in the face of increased flow rates, the reduction of phosphorus and emissions CO2. The serious design, such as research, has a substantial cost and uncertain results. I can tell that as Don Quixote work for years without tools, resources, and compensation. The ideas do not come to command, it is much easier to copy and copy, with small variations. And ‘what you do in the cleansing that, beyond a series of palliatives, you are stuck for almost half a century. It is foul-mouthed in the purificationcovered that would have also led to the cleaning of fossil fuels and biofuels. Whatever they say, if we want to reduce global warming, we must also recycle the CO2 of future biofuels. This recycling will not only serve to produce carbonates and new energy, but will also help offset the CO2, of any nature, more difficult to capture. Whatever they say, so that the CO2 content in the flue gas can be cooled, must be captured and neutralized a different surface water management and infrastructure projects that will not only serve this purpose. The CO2 will also have the merit of forcing us create works equally fundamental for the survival of man, that man would never do, committed to producing mainly consumer items. Will benefit from the protection of the environment, conservation of resources, energy and food production, the construction sector, the electromechanical industries, employment world. The thought that those responsible for the planet’s environmental wish to bury the CO2 makes me shudder. It would

have been better if I had another job. At this time I would have been happily retired and unconsciously.

3) SPECIALIZATIONS, ENEMIES & THE OVERALL PURIFICATION

I am sure that if I had paid for and ordered to work on the purification overall I would not get any results. Even if they keep the silence of what I write, I have already given more than I had hoped. As many researchers and designers, I suffered from “performance anxiety”.

It is now clear sector entrepreneurs cleansing, purification global ignore not to give up a share of the wrong market, in which they specialize. Local officials do not admit mistakes. The managers, who tills and they control all of the major problems concerning the design, are silent. They only need to manage. As there is no ideas, no money to invest, it is easier to ignore it and continue to patch a system that has never worked, in fact, harm the environment. These solutions would have to conceive of scientists working for the IPCC but these still do not know in which direction they want to go and they are not designers, or rather, the installers. They ignored the “purification global” and preferred the CCS and artificial trees. They are able to have great insights on individual problems but to put together systems and processes that already exist. No one has a global vision of environmental protection. I had to build it, step by step, knowing only partially, all the systems and processes; Deepening, modifying, adapting, putting together different systems and inventing all that is missing. There are many blind alleys

spoon-fed, which led me nowhere. Many have been misleading, as the current purifiers that I did not want to change. Forty-four years were needed to complete the entire route. I would have done it before, though much of this time, it was not served to solve problems of survival of the family. At the end of this long journey it all seems simple and logical. Why this logic, so simple, has eluded generations of technicians and finds it hard to be accepted? The problem is that environmental technology has been developed in separate sectors. To get to the “global depurcogeproduction” it was necessary to bring together into a single design all the sectors concerned. No one, until now, there has never tried it, otherwise you would have noticed that the facilities to be connected in a common logic must be changed. Nothing exists in the texts propose environmental and in existing plants. Nobody ever thought that you could get to this goal. It was too big a jump they had to do the scientists from the laboratory to the global environment. Even the designers and professors could jump as much. For it is fragmented and specialized work in the world, to have a global vision of environmental protection plant, is to be mistaken for a visionary or a philosopher who does not know what he’s talking in technical and scientific terms. Instead, these proposals are a mosaic of details. They come from an old plant engineer who participated, albeit as a gregarious in large industrial plants and production, as a large treatment plants, heavy lifting and hydraulic works, which follow the logic of design techniques and very different from each other. They are certainly not a visionary, nor a philosopher, not the practicality of the solutions that I miss. If I have some deficiencies, is to be found in the scientific aspects, too vast to be explored in all the disciplines involved. In proposals for global purification was necessary to synthesize, not delve into, otherwise I would never have come to the conclusion. It can be said that rather than design the plants was necessary to design the environments in which natural processes can take place more efficiently.

Until now, nothing has changed by the Kyoto Protocol, except for the birth of new energies, and on the concrete floor heating, food production and environmental protection, no significant effect, while also have little influence on energy production: they need huge government subsidies to compete with fossil energy. Instead, with the DCPTCG, we can continue to produce CO2 from fossil energy but clean, we can integrate it or replace it with bioenergy even more clean, even, subtract CO2 biological energy production, closing in negative balance of CO2 emissions. We can alkalize in a sustainable manner large quantities of water that pass in thermoelectric and go toward the sea, and recover the thermal energy to produce new energy. In the face of these immense possibilities, as always, neglected, even the new energies, although useful, should be resized. If the "purification global" one should not talk because you have to continue to hide the colossal mistakes, the "depurgogeproduzione global", even more so, you should not talk because even discontent of "emerging energy" in which you have taken the plunge whole countries, including Italy, especially China. Probably, also unhappy with the oil multinationals who prefer clean energy with CCS, which involves an increase in the consumption of fossil fuels (lowering the combustion efficiency) and new drilling earth's crust that only the oil companies can make (and we pay). With my solution I have not complied with the rules. What has the purification and alkalinization of river, lake and sea with energy? How can you put together photosynthesis with ion exchange resins? And why is there an increase in the thermal efficiency in a roundabout way: out of the center with water and hot gases and biogas returning there with high quality? Certain rules, which have become international practice, you should continue to follow them. Where are we heading if industrial experts, moreover, retirees, they start designing energy plants and environmental protection. It looks like a modern version of the famous poem by Toto: "The level". After the silences received by the scientific and entrepreneurial skills with the domestic

sewage, sewer and global, on the occasion of the “global depurcogepruduzionecovered”, I thought it was useless to insist on having collaborations. I wanted to write a “level” environmental rivangando the past, not only of the personal stories but even going back to the era “primordial” to know how he got to defend nature from global warming. I wanted to illustrate a concrete project to try to prove that the fossil energy can be cleaned and the cleaning of this product may lead to protection from acidification of the water, the production of biomass and biofuels and other forms of environmental protections that do not are unimaginable with current systems. I’m too unbalanced and not connected existing plants: treat very little water and produce thermal power plants in the individual too much electricity, which can not be cleaned from CO2 due to lack of space and water. With so unbalanced systems, we can not even recover the immense amount of heat produced. Do not be offended designers, but the current designs, have been wasted in the internal details of the plants were deficient in the external ones, which concern, CO2 emissions and heat loss and sewage into the environment. While coming to a very high thermal efficiency, that translate into energy is only 40%. E ‘was too shallow, so far, out of the atmosphere with simple chimneys or smokestacks and discharge hot water, acidic and polluted seas and rivers, and then ask the causes of eutrophication and global warming. With the D.C.P.T.C.G. fireplaces and chimneys will not be the final element for the exhaust fan, but the initial element of the recovery process of the CO2 and the water will not be discharged until, in addition to being purified, it will be enriched in carbonates, recovered in large part by the fireplaces and chimneys. To complete these plants, need other works that you can still do, solving current environmental problems and employment. In fact, the non-completion is the one that would result in the recovery of resources and a more equitable distribution of wealth globally. How can an international organization, with many scientists, was awarded the Nobel give birth or endorse the CCS? And how can a large

number of national bodies jump on the bandwagon, spending in nature works against the already scarce resources? If you do not create jobs to protect natural resources, the areas in which the authorities would like to create? In future plants, which will produce energy, we subtract the CO2 fumes and donate alkalinity water. If we do not succeed, it will be because we produce too much energy in that place, that is not compatible with the availability of water and space. We have to find the right balance, reducing energy production, to produce it elsewhere. In the example of dimensioning of a plant “DCPTCG”, it is clearly seen that the energy to clean, recover the heat, purifying the water, the original dimensions of a CTE can triple. The waters have immense tasks: Cooling of gas turbines and condensers, cooling the flue gas, heating of anaerobic digesters. Serve space near the power plants for the production, storage and use of biogas, sewage and water alkalization process, cooling, heating, irrigation, production of liquid and solid digestate, dehydration and composting of sludge. This will lead to the production of new energy cleansed of CO2 into an infinite loop run by man but parallel and complementary to the natural one.

Design professionals, like myself, too respectful of the higher categories: scientists, engineers and researchers, have underestimated their role. Traveling lighter, without sinking in the central interior details, and internal biological processes, which are not expected to know in detail, we had to be the ones to find the global engineering solutions. Unfortunately, as a pensioner, I realized that as a plant engineer, I was a very unusual case. Even the installers, like everyone else, prefer to specialize. And ‘more profitable from an economic and professional. They are one of the few who loved to know more plants of his career. After nearly two decades in industrial production plants, I voluntarily left the industry to learn about the environmental systems, starting from scratch. But even in this area, I realized, that

are preferred super specializations. The sector is larger than you think. In addition to treatment plants, there is the sewage system (quite complex and neglected), the water distribution networks with remote control and the various uprisings, the intake works by bodies of water, the well fields, irrigation equipment, the dewatering, the central lifting. The same purification systems use different technologies in which individual companies are specialized. Then there are the cogeneration plants, thermal power stations, hydroelectric, solar, wind etc.. Only from simple installer, I got to know all of these plants, which added to those known in the prior two decades, have turned me into a walking encyclopedia of plant. The specialists, bound by specialization, rarely reason of problems of which they are not competent. Should consult other specialists in other fields. Put together very diverse technical facilities is extremely expensive and not always the sum of experiences, leads to the correct result, otherwise there could be no more complicated mathematical calculations. And 'This is the reason why there are mainly biological purification solutions, mainly other chemicals, other predominantly mechanical. The experts thought that the sum was enough without thinking that also had to design the three-dimensional container to keep them together. The three dimensions would have made it clear that many things were beyond treatment. Their solutions would have to be changed. They did not and true protection of the environment has never begun. And never will if you do not realize the changes to plants and plant the synergies necessary for the recovery of wasted resources.

Personally, I do not wonder if a researcher does not know anything about what happens in the sewer system. His research begins and end within a single process. And I am not surprised that a designer who specializes in heat exchangers, do not know the chemistry and biology. And 'serious, however, that those projects plants of the area, underestimate the

prevention of hydrogen sulfide which could be done through domestic sewage and sanitation which would reduce the work of the purifiers of at least 50%. But you could go much further with the “purification global cities.” By lowering loads, covering verticalizing and plants, increasing the flow rates. All experiences on activated sludge go to hell and you can already begin to talk about global facilities. And ‘severe that there was no rational enough on the size of the thermal power plants and the likelihood of recovery of waste heat and CO2. If the designers had been less specialists and had reasoned in terms of overall treatment, we would have saved a lot of investment and, above all, should not we dismantle plants unsuitable for environmental protection. The heat itself scattered in the environment, is a form of pollution that promotes global warming. Lowering through the heat exchangers, flue gas temperature, changing the chimneys as described in section. twenty-three, you can make it more accessible for the capture and consumption of CO2 for environmental purposes without resorting to landfill. Unfortunately, if the designers already feel satisfied by proper sizing of the chimney from the point of view of the draw, born cases ILVA. The chimneys were built as well as the advent of the industrial age should be amended to bring the smoke down, by passing them through the buildings greenhouse. These things can only be offered to those who can put together the systems. And who knows how to put together an installation where they all stop at the base of the chimney or the water outlet of hot and sour claimed that she had fulfilled her task? Then we wonder why increases the concentration of CO2 in the atmosphere and the acidification of lakes and the sea. No one came to suspect that the systems made may not be complete.

In the industrial world hardly a single plant produces a finished product. Should be able to put together the systems in a production system competitive on the market, without wasting any resources (material energy workforce). Whereas the

production flows, each plant is contained in another even bigger and all are connected to achieve maximum production quality and unit time. Why in environmental protection, we advance carelessly? The systems are not linked. All discharges and emissions, purified and not, are paid into the largest plant of nature, which has defense capabilities, very limited, if you think that recourse to the fossilization of organic and inorganic waste that requires millions of years. If you want to optimize, in addition to production, including environmental protection, about another investment. In the industrial world, with the energy and professionalism existing problems if they wanted to, they would be resolved. But they stopped the chimneys and discharges, according to the law, without increasing production costs. The hot potato is in the hands of the legislature and the judiciary, which may not exceed the state of the art and state of the art is in the hands of private individuals, who prefer to advance in the systems of production of consumer goods rather than those of protection environment. The design is non-existent public and private, having the wrong way pretends not to notice that the system of activated sludge and purifying machines in the open does not work, dealing with a little water and not being able to close the carbon cycle. Indeed, produces CO2. Design should be public, which can not come because universities do not differ from the solutions proposed by industry. University professors are the main advisers of the regions, consortia and municipalities. Sell □□what they have: the same merchandise globalized world. The public sector, after selecting, for competition, young people more prepared, environmental protection has delegated to private practice. This, probably, in various forms, has occurred in the whole world. Only in this way we explain the lack of progress of environmental protection and dissemination and marketing in the World of the same purification systems and energy production. Systems and components are contained in thousands of catalogs illustrated with representatives and websites. The air cleaners are saturated with perfectionism, but always treat less water, a

lot of it sversano untreated, aggravate the problems of acidification of the planet. It takes more to change the environmental protection. In a world super specialized, it lacks the expertise more important to know how to protect the environment, which is not made of water, air and land as separate elements. These three elements are mixtures of several components that interact with each other all the time and they can not interact in the machines, in addition to the open sky. Need global facilities covered to achieve on site, in which water and air and limestone can interact before going out in the free atmosphere, where whilst at the atmospheric pressure, completely change the specific pressures and the solubility of the gas. Maybe someone has understood the message. So silent. But public officials to keep watch in the various institutions what they do? The brightest write interesting publications. One has to wonder to what end? If you do not arrive at concrete proposals and, above all, because they have remained silent on the “purification global” Nobody in environmental protection has never used these words and then no one is aimed at protecting the environment globally. At most planners establish a plan, separating urban areas from industrial and the area of □□the water treatment plant, which is usually common to urban and industrial water. Where are the other systems? Those who clean the air in the cities? Those that protect water bodies, river mouths, coastal areas eutrophication? Those that recover heat and CO2 from power plants? Answer: these protections do not exist, because we have not been able to design the systems. Above all, we have not been able to develop simple solutions that facilitate the contact between large bodies of water and air carbon in suitable environments to tackle emissions that affect global pollution.

What I want to emphasize is that in the environmental sector, shortage of specialists installers of the land and all those skills that lead to an increase in productivity, without

sacrificing quality. The plants bring them together specialists in the water, air, soil, waste, energy, handed down from one generation to the profession, according to the state of the art and updates the manufacturers of machines for the Environment, specialized in market niches. Lacks a level of supervision plant that puts together these plants on the territory, especially linking between them, if possible, without road transport. If there had been, at least a small group of supervisors, at least they would have noticed that the plants, they can not be connected to complete the closure of the carbon cycle, are wrong.

From old plant engineer, abnormal, I am convinced that if I do not insist with the global purification, until the forces supporting me, hardly anyone else metabolizzerà my experiences and my thoughts. The silences received have reinforced these beliefs. Scientists and researchers, more and more specialized, quite rightly, are enhanced for small and important scientific discoveries in every field, but do not see the connection beams that are missing in an upper structure, like that of nature, which is collapsing very quickly, geologically speaking. Who produces energy does not care about water and air and vice versa. We just beyond the concept that CO2, being the product of perfect combustion, is unassailable and indestructible. And 'This is the reason why they want to bury. To see these ties need to go beyond the experiences of the individual sectors, get into some details of the individual designs and make changes, so that the systems can be connected. No system can be an island unto itself, because it alone can not close the carbon cycle. At least the anthropogenic carbon cycle must be closed by man. The nature, alone, unable to close even the natural carbon cycle, as it can absorb even the anthropic? E 'was forced to alternate, after many millions of years, the ages of heating and glaciations to restore the balance. The man is accelerating the speed of these changes because it has

produced inconsistent environmental protection systems, while producing large quantities of pollution. In environmental protection, there have been no effective progress, indeed lose ground because those synergies were not realized, professional needed to overcome the limitations of local designers that deal separately with air, water, energy, industry and agriculture. The most important innovations in every sector, s'importano experiences occur when tested in other sectors, or when you combine several processes or systems. I do not know what would happen if a computer s'inserissero in the various global environmental experiences to synthesize them into a single universal solution. The computer, sometimes work miracles, sometimes disappoint. Personally, I prefer the summary made by hand, nose and professional intuition, which led me to DCPTCG

Some plants, from the point of view of protection against global pollution, must be changed completely. It 's the case of the treatment plants. Without the cover of the tanks are not going anywhere in the future protection of the environment and sustainable energy production. The tanks are covered the connection element between the various sectors to transform plants in local global facilities. But that does not want to accept the designers, professors and environmental authorities. Today we cover the tanks only to mask the odor produced by poor project design and management, wasting other resources, with deodorization systems that mask odors without reducing pollution. I do not propose that banality and there is need for courage and practicality on the part of the environmental authorities as evidenced by the results of the top of the world. The 194 delegations of sovereign states, with scientists, journalists and curious to exceed an average of 100,000 visitors, who come together every year to discuss global warming and energy return, on time, empty-handed because there is still no culture of global facilities, where you can close the anthropogenic carbon cycle, without wasting

resources and without harming the environment. I do not know concrete proposals of public bodies, apart from the CCS and artificial trees that make me believe even more in the "DCPTCG" you add, you do not replace the "purification globally."

Just to start and show how it could be conceived and how it might work a hypothetical system of "global depurgogeproduzione thermalcovered" (DCPTCG) I tried to dimensionarne one with an output energy of 320 MWh in this document. I see some good. But we also see the separate units of these systems that can be spread across the city, such as the common buildings, which in reality will be the greenhouses vertical (FSV) in which depureremo the water and the air captured through the sewer system (see purification in the global city).

These works, which today does not exist in either partial or full version, not even the collective imagination of insiders. In practice, today, with the existing purification systems and energy for anything we do not protect the environment in which we live and we do not recover almost nothing of energy resources: the organic nutrients have degenerated into the sewer system before you get to the treatment plants (tripling the cost of the plants and depuration), inorganic nutrients are dispersed into the atmosphere creating lung disease and global warming, the thermal energy contained in the flue gas and water is equally dispersed in the environment. With the global purification do not need artificial trees and new energy considered special just because they emit CO2, although production costs ten times higher than the clean energy "depurcogeproduction" and problems of disposal of materials still unresolved and difficult to resolve. In plants CO2 is a global resource and everything is recovered with costs of production halved, compared to the current ones. If today the

economic wind and solar can not compete in the near future, including whether it will be “depurcogeproduction”, they can not even compete on the environment. In fact, the maximum will be neutral to the environment, will never be able to protect him. Takes great works that the experts have not yet even begun to imagine. The demagogues, to define the large environmental impact, but will do so only to defend the current solutions, which do not protect the environment. There are immense wastage and potential plant huge, untapped for obstacles deemed insurmountable by designers, researchers and plant engineers who have never tried to break out of the traditional systems. Other wastes were caused indirectly by allowing investments and incentives in areas which would not have felt the need, if they had been developed for the time DCPTCG. Just think of nuclear power plants and also to the new energies are not competitive with fossil energy or biological clean. Would have been avoided even the majority of landfills and incinerators and composting. They have serious responsibilities planners and environmental authorities. Suffice it also to CO2, which is the bugbear and the emblem of global warming, which does everything to be captured and used to make himself useful. As a gas, non-poisonous, if not in high concentrations, heavier than air and steam, in addition, moderately acid to produce carbonates. No one appreciates these qualities. A jury has unanimously condemned the powerful CO2 landfill, and to be buried, it would be those who organized the whole process.

Nobody, not even the UN has ever thought to commission a study on a global purification system to be shared with all 195 sovereign states. He did not even have a patron, such as Bill Gates with its foundation. No one has ever thought this was possible, except myself. No one wants to believe because, as I explained, the overall protection of the environment is not compatible with the systems marketed today. However, in the world there is some huge multinational company that cover

all areas of technology to close the carbon cycle, but these companies do not have realized to do so. In these very large companies purifying the field is separate from the energy and industrial automation that is even farther. I hope, at least, to open their eyes to the common people, being unattainable, politicians and businessmen. Paradoxically, the way things are, we should hope that at least the huge multinationals, with diversified activities, they realize that they are already structured to work in favor of the global and purification, not against, as they do now. Could compensate for small losses that would result from changes in the industry purifying, with big gains achievable in the energy sector (thanks to heat recovery) and the huge market that is open in the field of industrial automation, necessary for the development of buildings in vertical greenhouse vertical (FS, V.). I hope that does not offend the great managers at the helm of these companies planetary, if a modest retired from 1,700 € per month (to be divided in three), proposes them to close, at least in their works the anthropogenic carbon cycle. Of course, drawing the right profit. They have not noticed you can? do not know how to do? And 'This is another reason why I wrote this book and I try to spread it with the powerful means of those who have nothing.

4) THE PROSPECTS OF GLOBAL FACILITIES

If I came to optimistic hopes of protecting the environment, starting from pessimistic findings of protection systems against pollution from agricultural, industrial, urban, waste water treatment systems and energy production, the little hope that the new energies, simply clean, can have a significant

impact on environmental remediation, I have to thank those who have snubbed my proposals. To understand the reasons (which I understood but not accepted) for which they have been snubbed these proposals they would like to bring the sewage where it has never arrived and ruled under eutrophication, subtracting CO2 through photosynthesis and alkalization in the waters, I came to these new proposals that involve even more land, atmosphere, agricultural activities, urban, industrial, organic waste and energy production, as in a single plant expanded. The scare quotes, listed in the first chapters, have been extracted from various articles published by the authorities and environmental organizations, but does not yet exist systems of global environmental protection, it seems they are published to art, to spend other resources in palliative current environment. It seems that the public authorities have concrete invented only the market of CO2 quotas to allow the speculation in this sector and capital to invest where they can pollute more easily, without an ounce of reducing emissions. Much more could the global economic crisis, but we can not rely on it for social reasons. Italian politicians are always ready to help the winning multinational corporations, as were unanimous to keep quiet about “global purification” that does not fall in the current plans of those who really governs and manages the environment and energy. No one has understood the spirit of the “global purification” and no one wanted to go into that. Those anticipated are merely the tip of an iceberg that could change the way of protecting the environment, energy production and the economy itself. When and if these authorities will make you truly realize that, apart from technological advances (always useful), the strategies adopted plant, even in the most developed countries, are wrong, you can begin the real environmental remediation. They have all the authority to impose such plants will have to be made, because the purification systems (industrial and municipal) and energy production in all countries of the world are under public control. We must put under public control the production of biomass energy that

will take an increasingly important role in the management of the resources available for men. If the treatment plants and energy production were designed with a global vision plant, you would have already realized that the CO2 produced by power plants can be managed as a valuable resource, along with waste heat, organic waste and sludge, of course, stabilized and composted digestate. It would be understood that the CO2 reduction program developed by the United Nations is a further obstacle, not only to economic growth but also to environmental protection. The CO2, if there were to be invented. They were men create the problem of CO2 not having been able to design, until now, the global facilities. Our beautiful country has never been distinguished for their ideas into environmental protection, despite having a huge asset to defend. If we had not been towed from Europe, who often punishes us in this field, we would be in much worse conditions. Also in this area our ruling class has confirmed to fly too high to compete with the real problems. But, at least in this case, is in good company. Just look at the inconclusiveness of the world leaders. How could I expect to find interlocutors without having entered Harvard, or at least from the Bocconi University and the Polytechnic of Milan? The things that I propose are not revolutionary in the technological sense, but the plants are in the strategy. Being an experienced plant engineer not by the merits of the processes, which are certainly valid, especially those invented by nature. Who does this job must have confidence in the work of others, can not try to understand the workings of a TV when you only need to install it, however, more than the others, he realizes that the TV generation, can not function without the switchgear with the radio system. Unfortunately, I do not mind televisions, but the environment, and despite having confidence in the work of others, I could not connect water for the purpose of saving energy and combating global warming, without modifying them. I would like to be wrong. If I’m wrong, we have no hope, because without the connections between environmental protection and energy production and

food is not going anywhere. Today, all purification systems, waste treatment, thermal energy production, while using cutting-edge technologies, have low returns and do not protect the environment because they are designed with limited objectives and local authorities, without the necessary environmental links. They are harmful to the global level, not only for CO2 emissions, but also for the contribution they make to the pollution of aquifers, ocean acidification and everything that contributes to global warming. Designers public and private not yet have a global view of the problems, so they can design the global facilities. When I realized that no one would listen to me I stopped to see where I was coming with my own strength. For over a year, I stopped publishing articles on domestic sewage, sewer, river, lake, harbor, evidently, global, considered works of fantasy and prelude of senile decay of those who have been sidelined by the production system. The isberg I found behind those ramblings, which I called “thermalcovered depurcogeproduction global” deserves a particular publication. Almost a design, with references, technical, dimensional, economic, even historic, as far as possible, with the limited ability of a simple plant engineer. Some might say that I invented just a word longer than the others and very late arrival to cogeneration, but it would be wrong, because the DCPTCG unexpected and evolution, not only of the existing cogeneration plants, but also of purification, power generation, and food. Moreover, no one-euro cent of public and private funding. In addition, I can not go. These systems can not be born in the indifference of the authorities and the experts private. The latter fear the simplicity of the system of global purification, having to sell the useless current systems. But even the simple things in need of investment, experimentation and subsequent updates. Suffice it to say that the current energy and purification systems, which have the serious drawback of not protecting the environment and wasting vast resources, are updated at least a hundred years old, they have participated and attended many thousands, if not millions, of workers the work, for several

generations, including world-renowned scientists. I myself have participated in the dissemination installing plants in Italy and abroad. I have the utmost respect for all these people, who have allowed the technological development without which I could not do my proposals, but no one should be offended if I say that has not looked beyond the local aspect. We must anticipate the treatments (that separating the organic sediments prevent the formation of hydrogen sulfide) to preserve the freshness of the sewage, plants put together by following a policy of global environmental protection. Most of the systems that we use for the purification and energy production were designed when there was no talk of global warming. But, if we think, are wrong for failing to comply with the principles of conservation of matter and energy. Probably, out of habit, you continue on the same road, improving technology, but without seeing alternatives, above all, without exploiting the synergies between environmental protection and energy production, which could improve each other. I know that plants are very different from the past, and have achieved excellent levels of combustion, but the overall performance does not exceed 40%, and only with modern combined cycles, exceeding 50%. But the more we do it in the waste water industry. Works are needed to retain surface water (without tapping wildly from the foot) to produce biomass for energy and food, consuming CO2 and producing carbonates to be entrusted to the same surface waters, which are the only ones that can deliver them to the oceans becoming more acidic that. These works, while simple, logical and achievable, as proved by the example of sizing, are far from current conceptions plant environmental and energy. These works should be combined with thermal power plants, or rather, since these are already there, you should realize where are the CTE Only in this way, we can increase the efficiency of resource use and clean energy produced. The D.C.P.T.C.G. born dall’affinamento the earlier proposals, purification global, but also from experiences in industry, energy and agricultural production. With the plant symbiosis between these sectors would become

the new energy production multifunction: purifying and protective of the environment. Contributing different recoveries of resources and adding the performance of the various sections largely overcome the general performance of 100% in energy production compared to the energy source base. But we must add to this increased performance aspects of environmental protection, well above those of current systems. In D.C.P.T.C.G. these sources are included in the process via a closed loop parallel, expelling a small percentage in the atmosphere, compared to 100% at present. Everything today is waste could serve to protect the environment by producing energy at a lower cost than the current, although the current energy production, is anything but protective of the environment. In other words, the biggest problems with which man has ever confronted, those of global warming and CO2 emissions, could be solved free of charge in large and medium plants with more features, that will only improve performance in years following the first realizations, as the technique of the many sectors involved will be refined. In recent publications had suggested the possibility of purifying CO2 from the flue gas along with the “waters forget.” The eutrofizzazioni and global warming are two related phenomena. No one objected and no one wanted to demonstrations, even if what I have written, in large part, does not need to demonstrations, but findings. For environmental managers in the country and the world environmental protection is insufficient for lack of funds earmarked for the environment. For myself, however, the lack of funds has been good. There will be fewer plants to be redone. It was my task and I was not even prepared to intervene in a field so vast and important. But I could not pull me back when I realized I see farther environmental officers and planners allowed to get their hands on the environment. Working without constraints and masters, you can overcome limits and boundaries that society imposes. There are no current passed through the scrubbers. If I had gone I would have bogged down. The air cleaners are saturated with alternative solutions which go

beyond the protection, technologically speaking, but do not protect the environment. In purifiers was concentrated all the technology making them almost of water purifiers, but very little water and treat sversano in conditions far worse in water bodies that fail to treat, that is much more than that treated. Above all, they forgot purifiers to clean the air that emit into the atmosphere: they produce CO2, H2S, SOx, NOx, CH4. A proposal made in most part of the treatment plants would have no influence on the overall system. Environmental problems are not true in plants, but upstream, downstream, above and laterally. E 'on the territory that we must act if you do not want to continue to pretend to protect the environment and wasting energy resources. Speaking on the territory of the role of the existing treatment plants would be reduced even may be deleted. The first laps I quickly realized that no one would listen. Politicians, technicians and economists who govern us, as always, hope for Italy more patents. Even being encouraged to return the brains who have fled abroad ("With Circular 14 / E issued on 04.05.2012, the Inland Revenue provides guidelines on incentives reserved for EU citizens who have gained cultural and professional experiences abroad and who choose to go back in our country "). At present, however, those who, like myself, is patented in the public interest and the public does not find interlocutors even to discuss it. In 2009, with my project of the mini invisible system for saving water (hidden in the walls and floor of the apartments) elicited the interest of the then President of ENEA, Luigi Paganetto, who invited me, by registered letter of 2 July in a meeting with the technicians of the organization. The meeting took place towards the end of September. I wanted to talk of saving water, sanitation and domestic sewerage projects that were ready. I did not talk about anything. I found waiting for a researcher who told me that the prof. Luigi Paganetto was no longer the president of ENEA, that they were police and that they were in trouble to carry out their projects. Imagine if you could make the load even of my own. I told him that those

things could not get me comunicarmele phone to Bologna. For a single-income pensioner, who barely gets to the end of the month, even a hundred euro, spent unnecessarily on the train, are important. I realized that apart from the prof. Luigi Paganetto no one had read any of the documentation sent, not even the researcher that I had received. Worse has happened with the regions. On three occasions a President, as a courtesy or sincere interest, I did tell you that my proposals would be passed to the direction of the "Department of the Environment." Never got a call from these unknown entities, responsible for the protection of the environment. But where are their plans? Aside from those of ordinary business operations that do not improve the environment and do not do prevention in the area. Then invoke provisions for foreseeable disasters due to natural disasters, which occur every year. I continued in the street began with the sewage purification which portatoo to trucks disidratatrici, purification global cities, strainers covered urban, river, coastal, no longer find interlocutors. The E. N.E.A and C.N.R. confirmed their lack of interest in these things. Our researchers will also graduate with honors with 110, will also be good at research, but, at least in the environmental sector, their experiments lack of practicality and fantasy. Just think of the projects Enea "save water", impractical (with tanks occupying the entire ground floor of the building) and too costly to be worthwhile structural water saving in homes. This project financed with European funds, have not wanted to compare it with the domestic water-saving system that had aroused the interest of their former president. Are too complex projects and Ananox DEPHANOX for water purification and removal of phosphorus, in competition with other systems in the context of the treatment plants, saturated also lots of machines and processes, which should be abandoned, in a broader perspective purification of the environment, which would lead to the production of biomass energy in a controlled environment. Not to mention, the resources spent in Italy for the CCS system, which reduces yields of fuel and the cost of energy will

increase by at least 25-30%, while the undersigned simply proposes to continue the purification process of the fumes, starting from the change the chimneys to recover the heat of cooling water increases the efficiency of energy production, at least, 30%, combining to thermal power stations, at no cost to the consumer, including the purification and alkalinization of water. In this way, not only would take advantage of the heat contained in the flue gas and water for cooling of thermal power stations, but these, but thanks to CO2 and simple crushed limestone, it would bearers of carbonates towards the sea. Add up the performance improvements and upgrades of the energy and cleansing, but now the heat is wasted and CO2 is an enemy to be killed with no expense spared. Of these things I wanted to talk, at a later stage, Enea and anyone else, whether in our country there was someone willing to listen.

We’ll see if it continues this neglect of our Environmental Authorities and our researchers, even in the face of these new proposals: the biological ponds optional following years covered vertical (SBFSCV), the production greenhouses covered mechanized vertical (SMPCV), ponds carbonation mechanized covered vertical (SCMCV), The anaerobic digesters composters linear (DDCL). These new proposals are perfectly integrated with the purification of sewage and global cities, completing the closure of the anthropogenic carbon cycle on Earth. The few who will arrive at the end of this book will understand how absurd the claim of researchers and designers who want to solve environmental and energy problems with only simple biology or technology integration specialist for the few sectors. Do you need more synergies plant, with old and new sectors, which have never entered the world of depuration and energy. This particular ferment, creative environment, the undersigned, is not due to a particular genius or madness, but the result of back reflections on work experience cross without having had time to think. But all this work rumination

and processing, including deposits patent, are worth less than nothing, for the growth of the country, though none of those who matter does not assume the responsibility to discuss these solutions, instead of keeping quiet. For lack of interlocutors have already left to decay of patents. At the global level, the UN should be talking about global purification, which, however, through the IPCC, has supported the CCS and possibly also artificial trees, which certainly did not help the natural systems in difficulty. I preferred to keep quiet about the latest news to publish them all together in this book, which speaks of depurcogeproduction thermalcovered global energy, biomass energy and food, resource recovery, purification and alkalinization of the water, in large quantities, such as never was supposed to do. Instead, it is possible and it is not complicated. I'm curious to see who is responsible to keep trashing all, continuing to talk, empty, environment, growth and employment.

It is better to create stable employment and productive activities in areas related to recirculation of the material to produce, energy, environmental protection and food, and in other areas related to consumer discretionary? The consumer society should ensure first and basic needs in a sustainable way? What activities can provide greater performance and stability for the overall protection of the environment through the almost complete closure of the carbon cycle? I defy anyone to do it without the D.C.P.T.C.G.

5) THE ENVIRONMENTAL RACKET

It 'really strange that simple concepts such as the "purification global", may hide for half a century, while

complex mathematical concepts come to light almost daily (about computers?). And ‘even more strange, that despite its simplicity, also not covered. It is suspected that many do not want to understand and many can not understand them for higher orders. Doubts corroborated inexplicable behavior of technicians public, private level, establish a contact for clarification and then eclipse without explanation. Likely to arouse greater interest would have to first develop the energy aspect that leads to higher economic affairs, but the heart can not be controlled. On the other hand, this is not programmed sequence shows that those who make mistakes to save cost harm the environment. The resource recovery, in the way in which it was conceived in air depurcogeproduction is a bargain for the environment and for the economy. But if I had not found this solution and I stopped only at the global purification, however, would have been a bargain for the environment, you have to wonder what the engineers centrano public games with the economy? E ‘to them that I turned, not to others. With a little delay I arrived in touch energy. Maybe it was an accident, but it shows that the route followed is correct. We engineers (designers, installers, researchers, managers) should apologize to the world for the waste of resources that we have allowed. At least with the benefit of hindsight, we should do self-criticism for the damages caused, even in good faith.

Unfortunately, based on the principle that no system is completely wrong, you do not accept defeat is always something good in poor results. To err is human, to persevere is diabolical. The last thirty years, when he started talking about global warming, especially Noting that the current system does not allow to reduce CO2 emissions, to protect water bodies and will not increase the amount of carbonates to the seas, we should have self-criticism and review all the criteria of environmental design. Although she never had the honor of being called upon to design major, I wanted to

consider my forty years of activity in the yards and the drawing board as a long apprenticeship to speak my mind, at least as a pensioner. If those who have greater resources and qualifications to solve problems you do not decide to propose acceptable solutions, it is said that there should continue to be silent. If, for them, the ideas have come to the wrong place because I was looking for more strength and motivation of those who consider themselves designated and titled. Prior to these experiences, I'd find exaggerated the book of Professor Paolo Sequi "The environmental racket" (which I bought, stimulated by the title), which speaks of choices incomprehensible environmental authorities world from the point of view of science. The book is not even tender with environmental associations. Less authoritatively, I have come to different conclusions: we are beyond the regime and dictatorships, put up by the first of the class, a task that went wrong, everyone has copied without understanding the meaning. The title was: how to fight pollution and energy. The was only one solution: "Depurcogeproduction thermalcovered global" instead believed they solve two different problems, proposing scrubbers and thermal power stations, which, separated, have not worked. No one has ever correct that task because even the teachers know the solution and now we have to fight global pollution with blunt weapons. Technological innovations were not enough, though made in large quantities, to improve the systems that were not designed separately, having many things in common. Today, we can speak of "universal code of silence" in defense of choices and bad investments. And 'much worse than Racket, because they involve who benefits economically, but also those who, for a mock professional pride, does not accept that you have not seen these serious defects. Who teaches at the universities, who legislates, politicians, civil servants, professionals, as they have not believed in the "purification global", they will not believe even to energy production to protect the environment. Will continue to ignore it, if only to say it will be a pensioner, are accustomed to only climb on the

bandwagon of the multinational environment.

Despite the many conferences on the environment, it seems that the participants do not know where to put their hands. Only way to explain the agreements postponed from year to year. Expect solutions from scientists and corporations. Scientists should be out of the laboratories and watch live the degeneration sewer, water eutrophication, the smokestacks of power plants, waste to energy plants, steel mills and cities, while the multinationals think only market and sell specialized equipment and environmental palliatives, which can not deal with global pollution. On the proposals of the undersigned, based on the structural prevention of pollution of water and air, no one wanted to invest a euro, while has been spent over 30 billion dollars in prototypes to capture and bury CO2 dangerously. Even without spending a single euro in experiments it is evident that using the CO2 emissions in buildings synergistic vertical, before outputting it in the atmosphere, this gas can be very beneficial to the environment. The dog is biting the tail vain, worldwide, for a problem that should not even be born, if all they had copied a wrong configuration (see Art on the Net “How could they be scrubbers”). Already today, the CO2 would be a valuable resource for energy efficiency and environmental protection, instead of the global calamity they created. I would write not these things, if I did not have firsthand experience. In the environmental field, where I spent my second twenty years working, there is no global vision of the company for which you work, or even the industrialization of the final product. There are different sectors (air, water, energy) are not connected in the great company of the environment, as it should be, in order to improve yields. In this area, have escaped the beams to try the needles in the haystack. Prior to globalize the economy would have to implement a common policy of environmental protection, as an expression of civilization, democracy and respect among men. The pollution produced in one

country, through the atmosphere and the oceans involves others. For example, the nations most affected by acid rain are those on which, due to the prevailing winds, the clouds are discharged acid produced in other countries. The problem is particularly acute for Canada that receives the U.S. acid rain, while in Europe the nations most affected are those Scandinavian. In these areas, the lowering of the pH in thousands of lakes has caused the disappearance of many animal and plant species. In Germany, more than 8% of the forests has been severely damaged. Soot particles, as well as corrode the lungs of people and works of art, transported the wind, darken the surface of glaciers, favoring the absorption of heat due to solar radiation. This phenomenon has been confirmed by a study conducted by the Paul Scherrer Institut (PSI), Villigen, Switzerland. Dust, bacteria, pollen and seeds are transported by the wind and then deposited thousands of miles away with precipitation. Large quantities of pesticides were observed even in the polar ice, the Eskimos and penguins. This indicates that the aquatic and atmospheric circulation plays a major role in the evolution and distribution of organisms. The pollution at the source must be fought with global water purification systems, which involve large volumes of water consumed for CO2, must necessarily better even purify fumes and water when not happen now. This is another important reason for the necessity of the connection between the sewage treatment plants and energy.

All the systems of environmental protection and energy thermal current, without exception, solve a local problem but damage the environment globally. The plant knowledge, technological, geological, agronome we have are sufficient to solve most of the energy and environmental problems of anthropogenic origin. We can even improve the natural systems. We will be forced to some work that provides some aesthetic impact the environment, but with large economic returns, environmental and employment. On the other hand, do not provide the environmental impact of

wind turbines, solar panels, skyscrapers, parking garages, industrial warehouses? Over all, the purifiers that grow horizontally occupy large spaces, to treat very little water, but may be three-dimensional, reducing the space in plant dozens of times, the same volumes of treated water, but also at the same time purifying the air . Because the environmental managers of the planet are silent on the global water treatment solutions that can clean fossil energy, alkalize and purify large quantities of water and with this new solution, recover the investment needed by the recovery of thermal resources scattered in the waters of the CTE? The environmental impacts would be much smaller if the responsible energy production had more evenly distributed generation plants in the area.

I could continue working for a few years. You can not serve two masters. I gave up contributions and fees for back to school, looking scientific evidence to what I sensed, in the belief that I would be more useful to society as a pensioner from that worker. I was not wrong. The experience is not water, I knew where they were the shortcomings of the purification systems and how to intervene, but I had to develop credible projects. I did not expect that through these projects I found, at the same time, the squaring of the circle of environmental purification and energy production. E ‘was natural to see in these solutions, in addition to environmental and energy aspects, including social aspects. Is not it nice to see so much unemployment while almost everything that we have created in the environmental sector should be redesigned to better management of resources and, above all for the better protection of the environment. Shall prevail to do nothing, to defend the interests of current? However, it is important to be arrived at “depurcogeproduction global thermalcovered.” Like all I could be wrong, but it’s hard to go wrong working on the mistakes of others. I hope that one day someone work on my mistakes, for obvious reasons.

Until now, no one has denied, and nobody wanted to discuss my solutions. More effective than a disinterested Racket is the hypocrisy, indifference of the powerful, and the lack of courage of the designers that have gone wrong. A racket, whatever they say, is run by people, clever and intelligent, would do anything to get their hands on future investment and future management. Do not give up the affairs of the reconstruction not to recognize the mistakes made.

6) THE ENVIRONMENT AND ECONOMY SEEN THROUGH DCPTCG

Who speaks of growth should also specify in which direction you have to grow. We should not beg for any business that provides a minimum of employment, sometimes procuring priceless environmental damage. The plants DCPTCG that do not exist by themselves recycling the matter to create energy, protecting the environment, would create a few billion in the World stable jobs, without having to invent, every day, new work activities at the mercy of stock market speculation. If you do not proceed urgently to achieve global environmental protection facilities, the World is likely to be unprepared for the growth of the world population and not being able to recover environmental degradation began with the advent of the industrial age, which is advancing with exponential laws compared from natural and, especially, anthropogenic. These are the same technologies offer the possibility of defense, but you have to know how to put it together. Without synergies plant you can not close the anthropogenic carbon cycle. The alternative is the current one: wait for the millennial cycle (accelerated by pollution human) nature to recover valuable resources after fossilization. But this alternative, passes

through the global warming and the Ice Age, which few life forms survive. They are growing in the World biotechnology to produce above ground food resources and biomass energy from algae and cereals. You have to look with interest to these innovations that are already beyond the trial: the photosynthetic productivity in nature with a yield of about 1.5% compared to photovoltaic energy consumption, while in climatic conditions and controlled lighting efficiency can reach this state current to approximately 35%. These technologies, which have nothing to do with transgenic crops, even in covered areas and industrialized can fill much of this performance gap, and on the same floor space, productivity will increase by at least a dozen times. Already we can assume skyscrapers producers of biomass energy and food. Although the overall treatment, which is based primarily on the "purification in a covered" can only benefit from these innovations for improved performance.

Thanks to elaboration of various types of purifiers covered, already anticipated, it will be possible to put together, in a closed system anthropic: Environment, Energy, Food Production, mentioned in the order in which they entered it, called "thermalcovered Depurcogeproduction global "(DCPTCG). We can imagine this system as a large plant, where nothing is wasted and everything is transformed, according to the law of Lavoisier on the "preservation of the masses." But Lavoisier found the phenomena, laid down the law, and left things as they are, with biblical times to the natural transformations. While us with the installations DCPTCG, we can shorten the processing time, improve yields, to address the changes as best suits us, recovering much of the wasted heat to produce new energy or new biomass. After closing the triangle AEPA., At least in plants DCPTCG, there will be a source and end of Environment, Energy, Food Production. Everything, nothing excluded, will be reused in the global facilities of the future, before they experience the transformations that

involve dispersions. The Heat will be used in the digesters and greenhouses carbonation, the CO2 as a nutrient in the biomass and carbonation; Irrigation water will be used in a closed cycle without polluting groundwater and surface water, the sludge will not be burned or fossilized, but digested, stabilized and composted. Practically, in the future, realizing parallel to the nature of the food and energy production and taking from nature only the resources needed to integration (those not recoverable in the recirculated) we may keep almost intact nature reserves, without stripping them. If we design the plants of the future, our descendants will have plenty of work and welfare without over-exploit natural resources. They will be like laborious ants intends to perpetuate the cycle of anthropogenic carbon, from which it will pick up what is necessary to live, including energy, protecting the earth's oceans and atmosphere, through the global facilities. The main activity of man would be concentrated in food production and energy and related infrastructure to cope with the increase in population. Closing the loopholes that human activities have, until now, left open in the carbon cycle, we will return to the nature of the ancient functions of natural cycles, thermal and biological alino to keep the environment in thermal climatic and biological conditions optimal. All this, of course, is a hope, that will depend in large part on the ability of the men who will be called upon to rule. If you do not include the projects have the right and duty to ask for explanations. They can not continue to throw away everything, trusting advisers and bureaucrats, super paid, which led to the environment at present. In the ability to design, program and saturate human activities, facilities and equipment will measure the ability of the ruling class. We see it every day comparing, among them, the efficiency of the services and the quality of life in the communities, regions and nations. Protection systems globally, of which I speak, on which all the engineers who design systems, in every sector, should work synergistically, are completely unknown because until about twenty years ago no

one cared global pollution, but only of what local. But, as has happened with scrubbers, once undertaken a road, made investments, consolidated technology, taught the system to posterity, it is difficult to recognize the errors and retrace their steps. If it is true that a hundred years of industrialization across the eras and the aeons, geologically speaking, are less than nothing, it is also true that 100 years of mistakes in the industrialization and environmental management by man, in the age of globalization with a population of more than nine billion people, will grow old the planet millions of years. Erroneously, it is thought that reducing or capturing the CO2 and producing a small percentage of clean energy, everything is in place, instead it is the system that is wrong. Fortunately, the problem is much more complex and articulated. I say fortunately, because it would be enough if only inventions of multinationals to solve problems, were only sufficient artificial trees and CCS We could continue with the current system, albeit with many social imbalances (gap between rich and poor). It would not be necessary the collaboration of all. Working together to build these great works of environmental protection is the greatest form of democracy. It 'simply absurd to see much unemployment around while we're at year zero in environmental protection and in the organization of the systems of energy production and sustainable food, while we continue to offer palliatives environmental and energy, as well as systems of speculation as share of CO2 emissions. With the "thermalcovered depurcogeproduction global" most of the population and technological resources will be committed to produce daily energy and power in competition with the easy extraction and land-owning crops, making it more equitable distribution of wealth, or at least, creating many job opportunities, that do not exist today. How can we create jobs and protect the environment if the water purification processes involved in the present are just a hundredth of those needed to combat anthropogenic pollution? The global facilities not only to be dimensioned according to the BOD and COD, but the amount of

CO2 emitted into the atmosphere, which must be neutralized. Neutralize the CO2 does not mean hiding in the hollows land, but tie it firmly to the environment through chemical, photochemical and photosynthetic natural. Fresh water must not only be clean (and are not), but they must do, above all, the role that nature has assigned to: carry carbonates to the oceans. A fortiori, if the glaciers are melting, oceans softening. We made a lot of unnecessary work and unnecessary entities invented, with fake jobs, that we are forced to close because the company can not afford to keep them. Lacking, however, civil works, hydraulic and electromechanical necessary for the transformation and exploitation of resources wasted. Today, some privileged categories by governments with insufficient lighting exploit natural resources without excessive costs without transformations and create job opportunities for a more equitable distribution of wealth. This system, based on the exploitation of natural and human resources is leading to the depletion of resources and the social upheaval the new generations. We continue to produce more than necessary, consumer discretionary with precarious jobs, at the mercy of the market, ignoring the immense job opportunities in infrastructure stable environment protection and energy and food, which would lead to job opportunities hundreds of times higher considering the induced activities in other areas. Think of the income gap between the oil companies exploiting a common resource, and the few, lucky, workers who find employment. A wise management, would create energy through the recycling of organic and inorganic matter, doing all work and drawing on natural resources only in emergency. Think of the immense works that are missing to recycle organic matter and CO2: water works, large digesters, productive greenhouses, ponds biological vertical, in related electromechanical industry, the mechanization of production greenhouses, the conditioning Climate greenhouses, the artificial lighting, the hydraulic lifting water, dehydration and composting of sludge. Today, missing these jobs that should have been the first to be made to create enduring

wealth and prosperity. We Italians, we can not continue to live at the expense of industry and agriculture, increasingly less competitive on the international level, except for niche sectors ch do not know how to resist. With the D.C.P.T.C.G. we would create a model of Italian development in the world. The service takes the main role in human life and society, not only do the various social, but actively contributing to the production of wealth, without swelling the national debt to import energy, which does not produce work and environmental protection. There is nothing more stable than the wealth created through the recycling of carbon. Everything else can change from one moment to another. We see it every day with the mortality of manufacturing companies, with the computerization of the offices, with the rapid aging of technological production, creating jobs and unmake. For political life will become increasingly difficult with the growth of the world population, if not create the infrastructure to accommodate these new populations assuring them, first of all, food and work. They must assume their responsibilities, along with the technical public, which should be the best, by going to contest their noble function. It ‘s just absurd that thousands of graduates, smart, successful candidates in the various Harp and AATO and universities, must serve as bureaucrats, while environmental solutions are handled in non-transparent way, in private practice, based on a few professionals, who can not help but copy and repeat the mistakes of the past. These, offering the usual facilities, with the usual local solutions that damage the environment at the global level (air and water). They do not know, they are not equipped, do not have the time and the convenience to study new solutions. If, at least had the curiosity professional, someone, I would ask for clarification. Be counted on the fingers of one hand those who have done it and no one has done the observations but fall into silence, as I had proposed the invention of the hot water. There is much to do in this area, but it is all to be redone, from training to technicians. Personally, I’ve never

been a technical audience, but nothing inspired me more of the environmental projects of public utility. Although I did not participate or win any competition, and I was granted the honor of working for the Ministry of the Environment, I think I've earned on the field at least the right to be heard. What am I saying? Every citizen who has some idea, it should be heard.

It 's very different situation in the field of industrial manufacturing facilities, where many combine professionalism. Nothing is left to chance, if not the purification aspect, which, as I said, depends on the legislator, who can not legislate rules that go beyond the "state of the art." The environment has not deserved the same professionalism employed to increase industrial productivity. If the appearance of purification had been treated as the production aspect (with the help of professional actors to do, in addition to quality, the amount and reduce waste) for a long time we got to the overall purification. It is no coincidence that at present it is one of the very few technicians who spent half his life in manufacturing plants and half in the environmental protection, albeit in modest roles. It is no coincidence that these proposals be her retired, not only for the long learning curve, but also for the large amount of time required to address all topics and all situations. Who else could jump into this absurd enterprise? Given that environmental authorities are silent, and that the local depuration make it so good to those who design and those who support them. And we need more and more because they do not solve the fundamental problems. Who could be interested in funding the study of global purification solutions? NONE. This is demonstrated by the silence, until now received, that no one is at pains to justify in terms of technical and moral support. You have to ask: what level of hypocrisy we heading? The solutions depuration global embrace the environmental protection of all cases imaginable: from single dwelling, the great city, the

Great Basin, the largest thermal power plant, dealing with air and water pollution. They are based on the prevention and recovery of waste. Without this waste, there would be no global warming. The absence of public planners with a comprehensive view of the environment and the mandate given to the private studios and corporations that lasts since the advent of the industrial age has led to the current environmental protection systems that allow me to criticize installing them in good faith, in Italy and abroad. There is no time for deep reflection for those who work in sub contracts. Only in retirement I had time to reflect on possible changes to the existing environmental protection facilities so that they could better protect the environment.

Meanwhile, the world of environmental protection continues to proceed in order. Artificial trees and the CCS, if they manage to reduce the CO2 will be in conflict with food production and biomass energy that they need for their CO2 increase production yields. Welcome the biotechnology. We need to stop finding solutions easier (petroleum) and exploit the natural resources with few benefits and damages for all, creating very few job opportunities. The “thermalcovered Depurcogeproduction global” is the opportunity to share a little more equally wealth and well-being because it is not the manna falling from the sky or the oil that you simply pull out, you have to build it day by day, giving employment to all. The CO2 is not the cause of global warming, but one of the victims of those who have industrialized the planet without examining the global environmental aspects. Even today, these aspects are ignored. CO2 is the result of an oxidation perfect, it is not a toxic substance, if not to much higher levels. We can breathe without problems, concentrations ten times higher, but the increase of the atmospheric concentration from the current 0.039% to 0.045% would result in the increase in Earth’s average temperature by about two degrees and a decade raising the mean sea level of about one meter due to the greenhouse

effect. For this we have to close the cycle of anthropogenic carbon. We need CO2 in plants DCPTCG, to protect the environment and produce energy, but we must not emit it into the atmosphere, as we do now. There is no need of scientists and international conferences but only plants able to use CO2 as a resource. Probably, it will be necessary to artificially produce more CO2 to increase the demand if we decide to adopt universally DCPTCG Other than the seizure and burial. Bio of future technologies, on which they have invested millions of dollars corporations, authoritative publications exist that everyone can see, I am interested, highlight the installation aspects related to environmental protection and resource conservation that have not yet been developed in Nowhere in the world and can not be taught even to young people it is not known even by the authors of the texts that deal with the environment, energy, industry, agriculture. These sectors do not communicate with each other even virtually. This is the reason why it happened to a modest “industrial expert” who first spoke of “purification global” and “depurcogeproduction global” having worked in the trenches in all areas. I participated in Tunisia, to produce works of grip, lifting water and irrigation networks (funded by the World Bank) grown from a small river to feed barren lands, where what little water does not solve any problem, while the same water could be used for productions off the ground, with no dispersion, recovering the waste water, yielding tens of times higher. This would have allowed the recovery of the water used for irrigation and new cultivation techniques. But, even the excess compost produced by installations DCPTCG will help to fertilize the barren lands. Energy recovery obtainable in DCPTCG will significantly reduce the consumption of fossil fuels, not a political choice of public support, but economic. If we increase the energy efficiency of thermoelectric power plants (CTE) must recover first the wasted heat in water and fumes, much higher than the energy produced, for the purpose of new energy production and we can do cleaning, while the fumes from the CO2 , designing otherwise plants. We have to

match each C.T.E. a covered purifier specially designed (DCPTCG). The depletion of oil fields more accessible is pushing the oil companies to drill more and more the seabed causing disasters much higher CO2 emissions. In the near future may become less harmful to the environment to use coal in a CTE combined with a DCPTCG than risk other disasters, such as occurred in the Gulf of Mexico or to Fukuscima, due to nuclear power. You could not talk about global purification in Kyoto and even at the top of the next, but at least in Cancun, Durban, Doha, you could begin. They did not want to do it even environmental associations. That the path of “purification global” is better than that covered, as demonstrated by the fact that the current systems, even with the virtual projections may exceed the limits of local purification plant fence, while the CO2 from power plants to clean up the CCS, as already mentioned, are lower, significantly, the already low performance. The DCPTCG could be used independently or in conjunction with existing power plants, with any type of fuel. From an economic and environmental development is superior even to the new energies, as we shall see. I was lucky enough to take care of plants for life, not through conferences, college textbooks and research labs, but live, and I am convinced that only equipment can save the environment and the economy of the future, without wasting anything . But those who design industrial facilities, environmental, energy must also draw on experiences from other sectors to close the carbon cycle within the plant. Since plants can not close this cycle alone we need to broaden the concept plant, the entire affected area to an industrial, agricultural, environmental or energy. No area should be only industrial, agricultural, environmental, energy, but mainly industrial, agricultural, environmental efficiency. A D.C.P.T.C.G consists of several elements:

The central element, which allows the connection between the industrial, agricultural, environmental and energy building is

the synergistic vertical (FSV) divided into three sections, the central one is the “greenhouse covered limestone mechanized vertical” (SCMCV), made above the collection basin and the recirculation of alkaline water (braa). This is the first element in the presence of a power or heating system, because it must proceed immediately to the cooling water and exhaust gas alkalinizing the waters at the expense of CO2 and calcium content in limestone rocks mechanically suspended in the greenhouse. I came to this solution self criticizing my previous solution that directly employed calcium oxide, the use of which presupposed previous CO2 emissions to produce it. A part of the mixture of air and CO2 by SCMCV is transferred in the following years covered ponds biological optional vertical (SBFSCV) and “mechanized production greenhouses covered vertical” (SMPCV) that will be contained in the same environment without walls of separation, using both photosynthesis to absorb CO2, producing biomass and oxygen.

In a building separate follow the “digesters dehydrators composters linear” (DDCL) that in succession, perform all of these functions, as specified below.

These new-concept that combine old processes with one or more gas tanks and a thermoelectric power plant (CTE) constitute the core of a “global Depurcogeproduttore covered” (DCPTCG). But the C.T.E. can be saturated with other light fuels and DDCL from other biomass from the area, including other FSV (SCMCV + + SMCMCV SBFSCV) that can be implemented in several kilometers away. In the description that follows we speak only plant of the central nucleus of the DCPTCG

They are very important these innovations. Suffice it to say that there are state of the art biological aerated ponds open that consume a lot of energy, emit CO2, H2S, odor into the

atmosphere, they do not produce biomass energy, but mud that absorb more energy to be consumed by the oxidation process. Instead, one has a very small natural pond optional annual productivity equivalent of about 0.5 T / ha of carbon which can not be exploited for energy purposes and sediment increased eutrophication in the long run. While S.B.F.S.C.V. diluted with loads on large surfaces do not emit odors, do not absorb energy than aerated ponds. Productivity can exceed 10 t / ha of carbon, only due to the greater absorption of CO2 due to the higher specific pressure of the gas and the techniques of artificial lighting. Also serve as an important water reserves of treated water or in the process of depuration can be used for any application. In addition, with the current purification systems we are forced to polluted water spilled in water bodies due to the inability to treat them and storing them. If, as described, in the same environment of SBFSCV add one S.C.M.C.V. which has a production capacity even higher, we are really in the future of environmental protection, energy production and cleaning of sustainable energy. We can purify the air by increasing yields CO2 production and energy and purify polluted water from cities and agriculture (recycled in the same manufacturing plant biomass) providing alkalinity to the water either through the carbonation, with both photosynthesises. Just think of the current situation, made by separate realities: the chimneys of thermal power plants that stand in the heavens, regardless of the fumes they emit into the atmosphere purifiers and flattened on the Earth’s surface, at a considerable distance. The current systems separately, but actively, all contribute to global warming with CO2 emissions into the atmosphere. The air cleaners consume a lot of energy, being forced to regenerate septic sewage, degenerated from the sewage system, other emissions of CO2 produced with the oxidation tanks in the open. We should accept these inconsistencies as side effects? Who said that? With global systems the sewers would be the architects of the early stages of the air and water purification processes and help to recover and manage vast amounts of water stored in the

FSV for production and energy. One has to wonder what is best for the environment, energy, food, employment? Continue to have the current systems that protect the environment without wasting resources and creating very little employment, or, have joined the CTE of the great Pirelloni and small Pirelloni distributed in the city that would be the genuine factory production and environmental protection, with induced activities in the field of civil construction, electro, industrial, agricultural, food, tourism. Doubling in the World the number of existing employees because the global environmental protection has never begun.

Cities and C.T.E. alone can not get rid of CO2 in a sustainable manner, as evidenced by the processes published by Aeneas, Enel, Cnr CCS systems, which are very complex. But even artificial trees that will capture it from the air while we need to catch him by the lower strata of urban agglomerations, along with fine, stainless steel and various toxic particles. There was no need to study just to give birth to something that is not needed and goes against the environment and the economy. There was no need even one hundred years of experimentation present in plants, whose performance is very far from simple FSV that alone could already replace them and no one would miss, eliminating even the air. But as anticipated and as we shall see in detail the DCPTCG (Which will contain SCMCV, SBFCSV, DDCL, SMPCV), more complete, are the future, not only energy, purifications, but the entire ecosystem: dealing with, as well as air, water flow rates hundreds of times higher the current urban organic loads, already purified in the city with its modular vertical and sedimentation sewage treatment plants, will be so diluted that the water purge and alcalinizzerà only through the FSV, while the hot water produced by power plants cools down the absorbed heat to the digesters to produce new energy. In the future, the management of drinking water will be linked only to water treatment plants and distribution networks of the

aqueducts. While energy production, purification and environmental protection will be one thing. Not like now, that being separated, are a source of waste and low yields. Even the new energies will never be competitive with a global system that creates energy while protecting the environment. How much costs will be reduced, with the global rationalization of systems, improving efficiency, avoiding duplication of efforts, both in environmental protection in the energy sector?

7) CO2 AS A RESOURCE WITHIN THE DCPTCG PARADIGM

The CO2 problem is solvable in the whole package at no cost for the overall protection of the environment, where, indeed, is a very important resource. If there were, the CO2 in the protection of the global environment we should invent it. To achieve global facilities, you have to put together some systems applied in industry, others in lifting systems, others in plants, others for cogeneration, but also we must refer back to prehistoric experiences that have seen the nature fight and win against greenhouse gases when there was only the primordial atmosphere. From nature we must take only the systems with which it has captured and capture CO2. The nature, not having had access to the technology, could not extract the sludge and digesting them separately (as we can do); fossilizzarli and had to resort to global warming and ice ages, sharing several times in the reconstruction of the environment to get current to the optimum state, that the “super specialized technicians” of the past and present, without wanting to offend, are destroying because they have designed the systems with a global vision of the environment.

They are plants that have been made in all countries, without exception, to witness this sad reality. It is not the fault of the engineers who are not trained to eclecticism, nor schools, nor by the companies. Nor from the sections of the ministries of the countries and regions, they also partially settled in the tasks. They all work with limited objectives and specialized. The overall plant engineer, you can say that it is a multidisciplinary profession that does not exist, and of which, probably, tomorrow there will be no need, if, at the top, someone learns to bring together engineers from diverse backgrounds to achieve future plants. Although, as I have already written, the sum does not always get the right result. The eclectic, created with the heart and love for their work, always the best result, even if it goes against the company's interests. For the moment, though with many shortcomings, are one of the few, perhaps the only one, to represent this category, as I said, even the installers have preferred specializations. To learn the craft as it should be and yet, with many gaps, it took more than forty years. I do not think that young people who are eager to make a career want to suffer so much going from one sector to another, traveling horizontally, leaving a secure job for a precarious. I loved this craft that with hindsight not be used to learn, because who learns a wasted life to be snubbed by professors, researchers, designers, entrepreneurs, politicians, who in their industry know much more and you feel satisfied. Lucky them. With them you can not compete on a scientific level. But who wants to compete? Who wants to modify the chemical and biological processes, which are considered custodians? If I became a plant engineer was a global event and only became a pensioner, poking around, like a bum, including waste of professors and designers who have played to make the installers, wasting space, and resources. Little is imported to the professors, specialists and multinationals technologically improve the sewer system, from which they are party, finding it completely unexplored (apart from the unnecessary dilemma between single and double net) and from

which began the birth of the “purification global” . Shortly imported waste heat and CO2 to water and air that have polluted the environment and lowered yields. There was little glory for researchers and designers to transform the sewers in the first purification of the global route and there were few in the sewer business for manufacturers of machines for purification. They preferred to invest in all treatment plants. Indeed, degeneration sewer would serve to increase the volume of business. Even the chimneys, which I propose to modify, foraging the market for CCS, artificial trees, nuclear, new energy, which are not sustainable. By changing the smokestacks and by the combination with the global purification could be born depurcogeproduction the global thermalcovered (DCPTCG) that would not allow comparisons in terms of environmental and economic returns. This is much more than the sum of a purification system and energy production. If I’m right, how many resources they would not have wasted to achieve, not the research, which is sacrosanct, but the power of producing nuclear energy. We would not have felt the need. But I do not want to talk about these issues, which relate to the past, which certainly to have been random, but just as surely someone has marched in the later stages. Let’s talk about this: today’s “global purification” and all that entails, no one says it, but it is held back by the system that specialists have created. What do the machines that have invented and product that does not serve to reduce CO2 emissions? Why have not managed to reduce the absorbed power? A treat agricultural water? And in the energy sector, clean energy, recover wasted resources and increase yields? They know that we can also clean energy produced from coal without using CCS? And reduce the pollution of groundwater and artificial waters moving out of the ground eliminating the most polluting products and recycling the water? No one expects the answers about the past, but on what they want to do in the near future the authorities, that when they come together, do not sink the knife into the wounds ever. The United Nations can not continue to make general complaints of

waste and silent on proposals for a “purification and protection of the global environment” and especially “Cogeproduzione covered global” which I wanted to speak, not in an article, but an entire volume , different from all existing publications on the depuration and energy production, to avoid oblivion touched purification globally. We’ll see if the specialists who can not see over the fence in which they operate, they will feel this proposal as a provocation or a concrete plan for growth, which could allow every sovereign state to be energetically autonomous, although not possessing raw materials, protecting their own in a sustainable way habitats and creating job opportunities for a large part of the population. Who wants to oppose it can not continue to hide behind the silence. Every minute that passes worsens the state of the environment, resources are wasted millions in bad investments, others continue to waste them not recovering wasted resources.

The man is accelerating the aging of the planet but it could also slow it compensating for even the faulty systems of nature. You can not waste any more time in palliative current environment. If the disease worsens the situation of the oceans will no longer be recoverable. Purifiers covered river, lake, coastal, DCPTCG, FSV, SBFSCV, SCMCV, DDCL, that there are distributed in the world, combined with gas tanks, and CTE, would strengthen the defenses of nature by reducing the congenital defect of the same, forced to fossilize much of the carbon. It would not be a bad thing if it might shorten the life cycle of a small amount of carbon to produce quick energy consumption, without waiting for hundreds of millions of years and the passage through eras of warming and glaciation, which will not leave unscathed the human species.

With D.C.P.T.C.G. we can even clean fossil energy. If the C.T.E. is coal or fuel oil, therefore not suitable for the

consumption of biogas that would produce in DDCL, we should put on the net the bio gas for use elsewhere, or assisting them another CTE fed with biogas and enhance the D.C.P.T.C.G.. In any case, nothing is wasted. Even D.D.C.L. are different from the digesters we know: are made on several levels to dehydrate and compost in a single process the sludge produced in the digester will also have a linear development, having to combine linearly FIV, which exchange with hot water, biomass, digests liquids. The linear development allows to have tens of workstations autonomous load of matrices and extraction of the digested dehydrated and composted, with a procedure described below. How could operate a DCPTCG after all, is simple:

The C.T.E. producing energy gives all what is not needed and that today DCPTCG to pollute the environment, in particular, the CO2, the heat of the fumes and the hot water (heated to cool turbines and condensers), which transforms this waste into resources, to produce power again, but this time, clean, involving, in particular, energy matrices from the territory.

The CO2 and the heat of the flue gas, after passing through the chimney CAD, described separately, comes to the section SCMCV the building FSV, which behaves like a giant scrubber or cooling tower in which the cooling water are enriched air also carbonates corroding rocks stored in the greenhouse limestone (scmcv) (that develops vertically and is located at the center of two bodies of FSV of equal heights) The fumes and the cooling air may exit from the top of the greenhouse SCMCV, not SMPCV + SBFSCV

In S.C.M.C.V. (Not accessible to man) are also released to the cooling water (after being re-used to heat digesters and production greenhouses). Water and fumes are cooled mixing them with other waters and other air. A fraction of the

greenhouse, cooled and diluted in the proportion of CO2 is sucked out of the SMPCV + SBFSCV (Accessible to man) which have the function of producing terrestrial and aquatic biomass consuming the CO2 consumed from the SCMCV neighbor. Furthermore, S.B.F.S.C.V. purify the polluted water from the same process DCPTCG, which is collected by a equalization tank and aerobic oxidation (brad) below to biological ponds (such as the supernatant liquid digestate, wastewater irrigation) and various wastewater, making them persist for much longer in perennial ponds (optional) that derive from the polluted waters of the nutrients for the production of biomass. Level Sensors determine the passage of water to the pond of the upper level, up to the complete purification, which will take place on the top floor. The number of plans, and the residence time, the surface area exposed to light, are dependent on the organic and hydraulic loads. Many subsequent plans, starting from polluted water and eutrophic, extracting sludge, floor by floor, can lead to discharge from the upper mineral water. If necessary, we can strengthen this purifying capacity by circulating water below the surface of the baskets containing ion exchange resins (cap.30). From the top floor of the ponds (sbffcv) can download the treated water or food pans (vas) that produce the veils of water in the greenhouse limestone, which run on rails, hanging baskets that contain limestone. Without wasting water in the spaces devoid of baskets, as seen from the sectional drawing also collected rainwater from the roofs are conveyed in (vas), without wasting water in the spaces without baskets. The lapping of the rocks with water, purified and softened, in an environment rich in CO2, corrodes the rocks carrying carbonates in the basin (braa). The ponds of the lower floors do not discharge water: regulated by sensors, without disturbing the surface layer (covered with a cloth of topsoil) raise the excess water on the upper floor, while the sludge fresh products are relieved to the tank (DFT) , whose overflow drain back to the dock (brad). The sludge from (DFT) thickened by the hydrostatic pressure directly feed hoppers (TRFA) loading of the digesters dehydrators composters

linear (DDCL), [or load them into trucks for transport to the (DDCL). if they are located in F.S.V. separated from the central core, perhaps used for the purification of water and urban air]. The S.M.P.C.V. and S.B.F.C.S.V. are made in the same environment of F.S.V. to rationalize the space occupied. The S.B.F.S.C.V. occupy only functional spaces (covered with grilled) with supplementary lighting under the decking.

Being the photosynthetic process much more complex and delicate than that of chemical rocks, plant is sized based on the amount of energy available to ensure thermal climatic conditions acceptable to the aquatic and terrestrial photosynthetic process. All the rest of CO2 is neutralized with limestone process which results in alkalinization of water in transit in the basin of the greenhouse SCMCV

The environment contains S.M.P.C.V. and S.B.F.C.S.V. is air-conditioned, as described in part, from the CO2-rich extracted from greenhouses SCMCV dall'amosfera mixed with air drawn through special treatment units wall units with axial fans with gravity shutters, air filters, drift eliminators, possibly batteries re-heat to reduce the moisture content. These greenhouses with percentages of CO2 around 0.1% will be accessible to man in contrast to SCMCV neighbors. The excess air present in the production greenhouses passes into SCMCV by means of Dampers.

The SMPCV they are fed by irrigation of the various plans (But it is possible that in this part of the network can be dosed liquid digestate or pesticides)

The veils of water flowing over rocks suspended in SCMCV, in addition to treated water in SBFSCV. ricircoleranno also the

water heating DDCL that will rise along the greenhouses SMPCV contributing to the heating in winter and summer to absorb moisture while you cool down. These waters, it is not sufficient to absorb all the CO2 content in the flue gas, especially during periods of low uptake by photosynthesis, other waters will be raised to the veils of water directly from the reservoir SCMCV to accomplish this important work by alkalinization.

So without their energy costs, other than those required for hydraulic lifts, and circulations, we can proceed to the process of recovery and purification of CO2 and alkalinization of the water. We will also have a reasonable chance of conditioning summer winter greenhouses, according to the mixing of air and water that will circulate. The percentage of CO2 in the air can be adjusted by taking greater or lesser amount of air (CO2-rich) from the humid heat of the neighboring SCMCV Of course, everything can be managed from centralized computer via sensors distributed in the water and the environment.

8) THE PRODUCTION OF BIOMASS WITHIN THE DCPTCG

The combination of biological ponds and greenhouses limestone vertical, with or without movement of ionic resins (Chapter 30) is already sufficient to solve all the problems related to clean energy and environmental protection, but can not be excluded productions agricultural greenhouses vertical. These can be almost completely automated, as in industry, protecting strategic productions from the elements, consuming less water,

using less manpower. Posterity will make the choices more affordable, depending on the type of company that you build. The undersigned who thought of these solutions can not fail to mention the “mechanized production greenhouses covered vertical” in “manufactured synergistic vertical.”

In S.M.P.C.V. The crops will take place on a substrate consisting of about 80 – 100 cm, consisting of topsoil and compost produced by DDCL The machining of the substrate, seeding, cutting and chopping will all be automated, using carts propelled (the type used in the automotive industry, household appliances, etc.) equipped with accessories that are normally mounted behind the tractors. The self-propelled trolleys equipped will move from one lane to another by traversing tracks on the ground floor and descenders automated managed by computers, like all plant operations. The harvest of energy crops can be done automatically: the fine aspirated from centrifugal fans mounted on the equipment for cutting and chopping, will be sent to channels depression with rubber flaps self-closing, and through vertical descent aspirants, it shall report directly to the positioned above the DDCL silos, hoppers or to vehicles placed on the lower floor. The sewage irrigation, which through the cultivation substrate reach the crawl spaces in plastic ball, covered with non-woven fabric. This system is already tested and marketed properly used, especially for the construction of roof gardens but it would be exalted with these great applications. I crawl through drainage pipes terminate in the oxidation basin (brad) supply of ponds SBFCV

By a happy coincidence, the biological ponds optional, widely tested have a height, are fine 80 – 100 cm granted to the layer of soil, therefore, we can combine them effectively exploiting the pedestrian spaces to create ponds that other like those vegetative, can achieve a gradual purification as

they rise. This opportunity has never been exploited. Over all, the stratification is useful for not exert excessive pressures on the side walls of the building.

Mechanical devices of which I speak were already a reality in 1987 when I left the Alpha Romeo to take care of the environment. I did not think I would have also proposed the use of the future in environmental protection, agriculture and above ground pool. As they say: learn the art and put it aside. The excessive cost of self-propelled systems should not exclude a priori the system, because it would be the only way to verticalize the production of biomass, to alkalize and desalinate large bodies of water. To save money, it is not necessary to electrify all lines but only the translation systems, while bilancelle processing would be equipped with interchangeable batteries and DC motors.

The vertical would allow space-saving, water and energy. Would benefit also the electromechanical industry in crisis, having saturated the industrial automation market, especially the automotive and appliance industries, where most, we use this system. The extreme simplicity of machining operations, sowing and reaping allow you to multiply agricultural production on many levels, not just energy. On the other hand, there will arise the problem of the use of large amount of compost that will produce, with the closing of the anthropogenic carbon cycle. The heat recovery and water saving, only the FSV permit, may make the cultivation ground very competitive, allowing all countries, including the poorest climatically, to produce environmental protection, energy and power to meet all the needs of the population. Before we delve into these topics was against seize land from traditional agriculture to produce energy crops. I felt that the priority was to ensure food for all, then, you could also think about the energy production. But with the S.M.P.C.V. not subtract land for agriculture, we

will add them. Do not subtract waters at the foot because we recycle the same basins of which will be equipped with the facilities. We will use enormous resources that are now lost improving the environment, creating employment and prosperity in all areas, including those that now seem distant from environmental problems, such as mechanical engineering and civil construction. We need to find new outlets for these activities that have created employment opportunities, wellness and lightened the labors of man. I am against the overbuilding stupid that accelerates the flow of water, but in favor of one that slows down to create employment opportunities, environmental protection, energy and food production, without which such works, you can not even imagine. The proof is in the top of the world who are not able to talk about global technical solutions, because partorirle are not enough computers or a simple exchange of ideas between experts in various fields. You have to study them with a vision of global plant but with the ability to go into details. Of course, to achieve these works you need the cooperation of the technicians of all sectors. Those who, like myself, had the opportunity to work in almost all sectors, can only point the way that others can not see. Do not be offended politicians, professors, scientists, researchers and designers, entrepreneurs, while a lower rank, I beg to distribute tips and projects, and will start to work for the global rationality plant, or at least, defend installations which have created, comparing in all respects with the global facilities, although these are still virtual. Even agriculture is moving towards more productive and more sustainable, which is precisely the soilless cultivation. But you have not thought yet to greenhouses and overlapping use of self-propelled instead of tractors which would also have several advantages, in addition to greater consumption of CO2: automation of processes, with millimeter precision, without compacting the soil with heavy vehicles of cultivation, increase productivity, protection from the weather. Do not forget that the greenhouses on the ground (non-overlapping)

also take up space, so intensive and irreversibly pollute the ground below, require that disperse heat very easily, so that the heating costs account for about 30% in the winter management. In summer the weather is cooling the greenhouse warming even more problematic. Require that industrially produced CO2 has a high cost. There is no reason not to make vertical and mechanize production greenhouses energy and feed them partially with the warm, moist air mixed with CO2 fumes cleaned, dusted, bon streams electrostatically filtered and placed in the recovery process consists of SCMCV – S.B.F.C.S.V. – SMPCV that this combination would be free CO2, heat, water for irrigation, fertilizers sustainable. It only takes the initial investments, largely recovered from the waste of energy today.

In D.C.P.T.C.G. there are also digesters dehydrators composters linear (DDCL). They are still virtual, but are the only plants that can do all of these operations in a compact manner, as explained in part: producing biogas for CTE (With matrices coming from SMPCV and above all, from the territory) at the same time, the CTE returns the heat of cooling water to the heating of the tube bundles (DDCL). Since the water at the exit of the tube bundles still warm (35-40 ° C) are also used to heat SMPCV during the winter. The D.D.C.L. produce biogas that is routed to the gas tanks, sludge and composted sausages, ready for use in agricultural work, including in SMPCV The liquid digestate is sent to SBFCV (through a covered tank equalization which would even reach any sewage sewer and irrigation water of SMCV). The SBFCV return the sludge to DDCL again to produce biogas. To saturate the enormous potential of DDCL in some other way, come from the territory of shredded energy crops, vegetable waste, municipal organic waste, animal manure, etc.

Will not make sense to have other thermal power plants,

incinerators, composting digesters, scrubbers in the area if you do not saturate the potential of DCPTCG, which in contrast to other systems, do not emit CO2 and have higher yields, using the waste heat of the same CTE No agricultural farm transformed into energy producer, with all the technology that will be used, and with all the arrangements that can be made between public entities, while necessary (ENEA and CRPA), will never have the availability of water and limestone needed to break down all the CO2 and recover all the heat produced, nor can shoulder the burden of public purify sewage from other sources, or to alkalize the water to be returned to the environment, which not even bother to do purifiers, despite the well-known problem of ‘ ocean acidification. So, thanks to treatment plants covered, and its derivatives (DCPTCG, – SCMCV-DDCL-SBFSCV-SMPCV), purification, alkalinization of the water, the capture of CO2 from the air, and energy production can be linked recovering waste, waste, thermal resources currently wasted. But also protect the oceans from acidification and land desertification (with the help of the nutrients contained in the large amount of stabilized sludge composted we have available). The D.C.P.T.C.G. although systems with more functions, can treat hydraulic loads hundreds of times higher than current systems, are simpler from the functional point of view, but they require a different design and a spatial planning of the various energy sources. Also thanks to previous experiences, seemingly far from environmental protection and energy production have come to propose that these solutions can be refined on a case by case basis. Some specialists in their field may make observations. They would be like, but I invite you to compare a priori what made its industry against global pollution and resource recovery. Nothing or almost nothing. THE environmental sector has copied many plant and machinery industry but has not been able to grasp the concepts management, which would serve much more than cars (which in the overall treatment not required). Everyone is talking about environmental management, but it is always partial and local

management. The proper management of the environment also involves changes to the concept of private property, not for ideological reasons, philosophical, political, etc.., But management. The management, also locally, must be made with purification plants and of global energy production, able to close the carbon cycle, that is not completed with the perfect oxidation that produces CO2 in the air, but with the production of soluble bicarbonates that prevent ocean acidification and biomass energy that produce energy to be consumed on the spot, recycling organic matter. Unlikely to a farm transformed into a producer of energy can meet all these requirements, unless it is in a particularly favorable geographical position. Thus, the production of energy crops and fruit and vegetable can be made on and off the field. Unlikely, in that field can compete with that outside the field, both for productivity, both for the protection that will ensure the environment. Production systems in food, energy and environmental protection will be so closely linked that they can not continue to do the damage they do currently. Even the excess production, vegetable waste, which today are not being used, can be collected by automated systems to be transformed into energy. These are the reasons why I talk about changing the concept of property in the name of the community. There will be plenty of room for the small property, if not super specialized niches, but there are immense job opportunities do not exist today.

Today, in the energy sector there is greater excitement than purifying, probably, just because you envisage best deals. Mistakenly believe that the industry has come purifying to a standstill and can not contribute much, to solve the major environmental and economic problems that characterize our era. For myself, the environmental potential are still to be discovered for the simple fact that the system of activated sludge, which has established itself in the hundred years of history purifying, it was not the way to go. The incentives

provided by the various governments have determined the energy gold rush. In my opinion, this race should be stopped, it being understood that the research should continue, and you should find the courage to start again with new systems of global environmental protection that would involve how to build cities, sewage, industrial zones, how to manage the environment and energy resources. The overall protection of the environment started with an article of yours titled “flocculation at home” idea was a bit ‘vague, which is intended to protect the environment along the path of polluted water, saving water and drinking easing the organic load in the sewers. But as the waters were advancing in this virtual path was born the sewage purification, purifiers covered in various versions, even to protect bodies of water purifiers with immersed directly in the water and can also oxygenate the water already present in the water body itself. However, these things Italian environmental authorities do not even have considered. Today we are witnessing powerless to eutrophication and acidification of lakes and coasts, while they continue to advertise with blue flags.

To develop all the ideas of depurcogeproduction there were two possibilities: 1) work in a team working for as long as necessary (and this only very large companies can afford it, admitting that the head of the company has at least fantasy to imagine or approve ideas, and 2) work alone, for years, weaving and reweaving the fabric, as the various insights that force you to start from points previously congealed, modifying and adapting the various needs. This second system is what I have to use it. In the study of global environmental solutions is necessary to simultaneously address all the problems, hydraulic, physical, chemical, biological sewage and air anticipating, above all, degenerative phenomena unwanted. Are the links of the solutions that help you develop the necessary synergies to the recovery of resources and increase yields. These links have never been realized in the world environment

and energy. Who created the sewers was occupied only the appearance plumber and has worsened the conditions of sewage, without solving the problem of sediment and hydrogen sulfide, and who treats the waste pollutes the air with the oxidation processes in the open and does not prevent the acidification of water bodies; those who produce energy, anyway, polluting the air and heats the water and the air, and who disposes of waste pollutes groundwater and air; those who cultivate the land pollute the ground water system and superficial. However, any environmental problem or energy production, as well as local and specific solutions that we know could have its own global solution: from degradation sewerage (sewage treatment), CO2 emissions (water pool); interception of unwanted nutrients that causing eutrophication of water bodies and coastal areas (large hydraulic works, treatment plants covered, biological ponds covered) the recovery of waste heat in the water (large digesters linear); exploitation of CO2 as an environmental resource (carbonation of rocks, photosynthesis in the biological and agricultural production in the greenhouse); recovery of irrigation water (vertical crops in greenhouses, biological ponds vertical); recovery of the fumes before issuing them in the air (chimney CRD) to sustainable energy production from waste biomass and fossil fuels (DCPTCG); evacuation of the exhaust gases from the cities (purification combined with the global urban sewage purification and FSV); evacuation of untreated sewage into the sea, (scrubbers and biological ponds covered vertical), the scarcity of land for the energy production (greenhouses vertical outliers). Putting together the works of global security, agricultural production outside the field of energy production and purification, which does not even exist in the imagination of designers, environmental authorities and authors of texts on the environment and agriculture (at least for the vertical and Automation), we could close the carbon cycle, in the cities in the country, bodies of water, in coastal areas, recovering the resources contained in the emissions of CO2, heat loss, waste, contaminated water and produce sustainable energy. There are

few existing works that can be integrated into the synergic management of environment, energy and food production (AEPA). The current works, are not necessary, since they were not designed to work in conjunction with each other. Of course, apart from the C.T.E. the right size, which by sheer coincidence, were made in the right place.

9) THE CLOSURE OF THE CARBON CYCLE IN DCPTCG

That the “Italian System” does not work it is clear to all but a few it is clear that environmental protection facilities for the “Global” do not work. If we could take comfort even those of the locomotive Germany. All existing plants emit CO2, including water purifiers, and no one thinks to take advantage of features such as nature does. Unfortunately, nature has limits, and many things can not be her own, but has shown us the way. The carbon cycle must always close and not close producing CO2. The nature of some processes you complete them after thousands of years (fossilization). Anthropogenic processes can do much sooner. If certain industrial activities can not do so independently, must be moved in an area where you can realize a system suitable global closure of cycles that remain open. Closing cycles, neutralizing the CO2, recovering the waste heat, and producing clean energy, would benefit from the same industrial companies for lower energy costs obtainable although it should add the costs incurred in cleaning efficiency. In the case of micro polluting activities is the concept expressed in the purification “global city” where production of underground collectors to capture, compress and deliver to “manufactured synergistic vertical (FSV).” The sludge produced by these modern apartment blocks

glazed, located in the same city, they could be sent through underground pipes to DDCL of D.C.P.T.C.G., or, via tankers.

With the system C.C.S. (Carbon capture and sequestraction), you add waste to the waste, environmental damage to other environmental damage. It is worthwhile to include in this publication is an excerpt of an article I wrote over a year ago, filmed and posted on the n. 1. 2012 notebooks “Technical Legislation”: “The CCS (Carbon Capture and Sequestraction), which is being carried out worldwide, including Italy, is authoritatively criticized worldwide for costs that are expected: the prototypes have cost a hundred billion dollars and it is expected a cost of $ 70-80 per tonne caught, excluding transport costs and landfill; most reliable solution, which is the post-combustion leads to higher fuel consumption by 11% in the case of methane and 30% even in the case Coal to have the same power output, a spill of poisonous clouds of CO2, could create the so-called Nyos, which is the death of all living beings by asphyxiation. In this short article I want to point out the futility of this international project sponsored at the highest international levels such as the IPCC (Intergovernmental Panel on Climate Change) and even the UN. It shows the process published by Enel, applied to the system prototype Brindisi (http://www.progettosienergia.it/post/l ‘plant-to-the-capture-of-co2-on-toast):

• After the treatment in the denitrification, and the electro desulfurizer, made in the coal, the flue gas, cleaned of oxides of nitrogen and sulfur and with very low concentration of ashes, pass into the capture of carbon dioxide. The unit is composed by the absorber, stripper, by a reboiler for the regeneration of the solvent and from the condenser.

• absorber. Within the absorption column, the fumes are in countercurrent contact with the absorbent solution of monoethanolamine (MEA) and the CO2 yield. Go so devoid of carbon dioxide to the chimney and out into the atmosphere.

• Stripper and reboiler. The rich solution from the absorber of CO2 comes out and enters the stripper from above. Going down, takes advantage of the heat supplied by the reboiler and warms up favoring the release of CO2. They therefore form a gas phase of CO2 and steam which proceeds towards the head of the stripper. The liquid solution regenerated, instead, falls downwards and can be sent back to the absorber.

• Condenser. The mix of carbon dioxide and water vapor leaving the stripper passes to the condenser, where the vapor returns to the liquid state. The condensation of the CO2 removed is postponed in head to the stripper, while the pure CO2 continues the transport path and subsequent storage

Discussed above, this process seems too complex to be applied to the CO2 emitted from heating boilers in the city, from the city traffic and small industrial activities, where action should be taken. It can be applied only for very large emissions of thermal power stations and then to incinerators and so on. But what sense does it capture CO2 to bury it? After the fumes were denitrificati, bon streams and deoxidized, filtered electrostatically, it is better to continue cooling the smoke as mentioned above through the chimneys CRD and the buildings F.S.V. without losing the performance of 30% of the calorific value of coal and other resources to spend for the landfill and run dangers to the effect Nyos? Is not it better to recover the heat of the cooling water and start a new energy production on the spot? Use the same CO2 fertilization for carbon and extract calcium

from rocks and alkalize the water that we send out to sea? Let no one say that the returns would be low, because the environment covered, the solubility of CO2 in water increases by dozens of times and the contact surface with crushed rocks and stored increases by hundreds of times.

L ‘article cited, which was already critical of the C. C. S., was written before the inventassi DCPTCG, which shows that not only the CO2 emitted by power plants, but also the waste heat from them, can become valuable environmental and energy resources. It ‘possible that there may be positions so opposed? CO2 is a calamity or a resource? For myself the CO2 can be a disaster and a resource, depends only on those who manage it. We just have to hope that you manage the environment and those who can manage it as a resource, because there can be more resource efficient and economical to transport the carbonates in the oceans and increase the productivity of biomass energy. Not to be demagogic I developed to detail plant that I think are easy to understand (for those who want to understand them).

We should not pretend to solve global problems with nuclear and CCS hiding the radioactive waste and CO2 in the subsurface, without solving the problems ocean. These solutions may have a justification if there was the possibility of global purification, all unknown.

Nuclear and CCS, are not global solutions, structural, sustainable, economic. Are not global because they neglect the pollution of land and ocean. Are not structural because you will always look for new sites for landfill waste and CO2. Are not sustainable because nothing can ensure the maintenance of underground storage sites against seismic events of particular intensity (effect Nyos). The story of nuclear waste Axis,

Germany, where the waste should be moved with high environmental risks for the trivial infiltration of water serves as a warning. Only shudder to think what would have happened if he had been buried in that area also CO2. I do not pronounce on the costs of nuclear power, not being updated, but the CCS it is certainly not cheap, it is true that the process of capturing and processing and compression costs $ 70-80 per tonne excluding shipping costs and landfill. Also in the case of methane and light fuels must burn about 11-12% higher and in the case of coal even 30% to produce the same amount of energy. It is not true that the C.C.S. closes the carbon cycle, imprisons him dangerously. At the proper closure of the carbon cycle participates in the sky, the sea and the land, as I have tried to do through the global facilities, where it is enough to eliminate losses to increase returns in all sectors: energy, food, purifying. We are not the last beach, D.C. S. (Already cost about thirty billion dollars) and the nuclear and new energy, non-competitive, they can still wait.

Unlike the case of air purification in the cities, where CO2 and other gases, stagnate in the lower layers of the atmosphere. In this case we must intervene to clean up the environment but you will certainly not intervene with the afterburner, nor can we think of continuing to dab with bike rides and road closures. Of this I have already spoken in the “purification global cities” that republish chap. thirty-two. The world is moving towards an unprecedented population increase. In 2050 you will be nine billion people (there will be). Need more environmentally friendly solutions. For better or for worse, the C.C.S. we talk a lot and is progressing with substantial funding. While the overall purification which is the sustainable alternative with potential purifying and protective of the environment, which the inventors of the CCS not even imagine, speaks only the writer and no ruler or a private, until now, has to invest one euro. For Italians

purification global not critical and do not argue, simply does not exist. Only to criticize it would admit their existence. Who benefits? What do you think of it? Where are the environmental groups? Are unanswered questions that I pose for some years, coming to the conclusion that in the environment, as in politics, the individual countries and the entire world have always what you deserve. Both the account will pay those who come after.

In 2012 we are still a year zero environmental protection and are not seen glimmers of improvement. I recognize that important technological advances have been made, but I say that this progress would have been good if addressed in a vastly superior environmental protection strategy globally, not locally confined and sectorally (water, air, energy). I do not think I can go beyond the "global depurcoproduzionecovered" which summarizes what should be sustainable human activity. The environmental managers, national and international, these proposals will also continue to cestinarle, but it is important that they exist, not as a point of reference demagogic. For, who has the presumption to design environmental protection facilities, which work with the current limits, which may not exceed, without defining those who protest demagogues projects. Meanwhile silent on alternative projects, not to admit their existence. Was not achieved anything of what I propose in the environmental sector. Of course, you could avoid a lot of wasted putting together the environmental protection and energy production. Apparently, the fields are too different to be able to integrate. I myself would not have seen the possibilities of these connections if I had not invented before the purification of sewage, later, strainers covered and I had spent many years in the automotive industry that inspired me the vertical of some sections of the plant and some agricultural products. These are the elements that are missing to connect to water and air purification both for energy

production in a sustainable way. If you do not remove the barriers, especially psychological, you can not see what’s behind it. Even the cleaners equipped with cogeneration and cogeneration containing the same treatment, despite being fundamental experiences that go in the right direction, they are far away from DCPTCG that are more complete and powerful. These will be able to close the carbon cycle over the burning avoiding CO2 emissions, recovering the waste heat from power plants, especially alkalinizing the waters, the same CO2 will not be considered a problem, but a resource. The global facilities can recycle the waste constantly avoiding much of the anthropogenic production of greenhouse gases in the atmosphere. The nature, as mentioned, is nothing more than a large plant thermal climate which has delegated the most important role, that of temperature regulation, the freshwater stormwater flowing in the rivers (and also in the sewers). Today, with the uncontrolled development have accelerated the rush of these waters into the sea, and we had to slow them down so that they are able to absorb as much CO2 we produce through environmentally friendly processes. Rainwater, with its own characteristics slightly acidic have a duty to get rich in carbonates along the way that will bring them to the oceans to soak up the natural process of acidification of the planet. The S.B.F.C.V. in F.S.V. distributed on the territory may constitute an incredible system of slowing down the stroke of the waters and enrichment of carbonates together with SCMCV contained in D.C.P.T.C.G.. These are the only plants in the world that are proposed and can strengthen the global climate system heat in crisis. Fresh water is rainwater, as always, is the vehicle through which, CO2, calcium, magnesium, silicon, carbon, oxygen, and many other elements in smaller percentages, they return to the oceans in the form of carbonate salts. The saline waters are oceanic storage tank provisional carbonates (the buffer of the World). The ocean floor, the crust and the core of the earth are the tanks final carbonates and of all substances fossilized, from which the man pulls out the part, more accessible, for their own needs.

The man, with its industrial, urban, agricultural, in many cases, does not allow the complete closure of the carbon cycle: large amounts of CO2 are not able to combine with the alkaline minerals and alkaline-earth carbonates to form salts to transport to the oceans through the waters, as nature tries to do, even if not always successful, as in the case of volcanic eruptions. At this environmental imbalance, partly natural and partly due to man, participating in all plants, without exception, that man has designed to protect the environment (sewers, treatment plants, landfills, incinerators, composting, digesters) and, especially those that produce thermal energy. “The overall purification” is proposed to involve a greater amount of surface water, so also the man-made CO2 could be combined in chemical and biological processes producing and delivering greater amounts of carbonates oceans; prevents the CO2 arrivals in the atmosphere, where can not be neutralized before being absorbed through sustainable processes. Wherever there is a process of combustion to the man there should be a forced system for conveying flue gas in a sewage system, cooling and indoor water basin, where it can be the contact between the flue gas, calcium and water, so that the water is enriched with carbonates, regardless of the other purification treatments. Today we can do it easily in many cases, because the fumes come out, or they could get out of the chimneys at temperatures below 80 ° C (boilers to condensation of fumes, used with water temperatures of 30O C. return on the flue gas temperature can be about 40O C.). With the studied plants, in different ways, for each environmental situation, you could protect the entire territory (see The purification global cities, purifiers inland waterway, port, lake, etc. Sottoascritto of which only one has the courage to speak in monologues, now, are three years.) The operation is facilitated by the greater weight of CO2 to oxygen and nitrogen (contained in the flue gas), from complex biological processes, such as photosynthesis, chemosynthesis, from chemical reactions allowed by the football. Biological

processes are preferred in most cases because they also purifying functions of the water producing oxygen. But faced with enormous concentration of heat and CO2 from power plants, we can not rely only to the biological processes, we must also use chemistry, physics, the works of civil and mechanical engineering. In these plants, the water demand will be huge, being necessary to satisfy other important functions: cooling the turbines, condensers and fumes of the plant. The fumes, would use the classic fireplace only for the first cooling stage, climbing towards the atmosphere, but at the top of the same, would be picked up to be transferred in large greenhouses limestone to be further cooled and treated to release the CO2 and the other elements and toxic pollutants were not killed in the previous processes. Studying, in detail, these plants, I happened to surprise me for other important results obtained: economic, energy and environmental, that I had not thought of that. The land, the water, the thermal power station, the filter, the waste disposal, the gasifier and more can be a single system that closes the carbon cycle. The air that comes out of these plants will be free of CO2, NOx, SOx, particulate matter, smog, purified water and alkalized at low cost. In these three years of publications, I had not written anything on the energy sector, appreciating the technological ferment that stirs in search of cleaner energy. Today, while continuing to appreciate, what they do lots of technicians working in the new energy sector, I am sure, that the "global depurcogeproduction thermalcovered" is far better from the environmental and economic. It 's the classic "Egg of Columbus", or rather, a basket of eggs, which all could see and at present, nobody wants to see to continue playing with the environment, such as the mouse plays dangerously with the cat: a game of profits that does not allow for progress in environmental protection. Probably, with this project, not wanting to, I will be enemies, even in the energy sector, as I have done in the field of purification. Even farms recently become energy producers will be against me. Some would say

many enemies, much glory. But, to the undersigned would be enough only that inquadrassero their facilities in a broader context, where there is only energy. The plants that statement does not criticize the technology only seek to recover the waste that existing plants release into the environment. The D.C.P.T.C.G. confirms that the path of purification global is the right one. The water treatment processes, according to all the texts that teach the subject, are nothing more than an acceleration of natural processes through the plants, specially studied. Only in the study, test, refine, manage water treatment plants, entire generations of engineers have forgotten to cover them up. This is not an oversight of little account. The mere coverage of the treatment vats, would change the contents of the tanks without increasing the atmospheric pressure, would have accelerated the process in an incredible way, consuming CO2 and economizing fuel consumption. If they did, we would not be waiting today and follow, hopeful, and the many unnecessary world summits on the environment. Covering plants, verticalizzandoli to increase the contact surfaces, avoiding the dispersion of the gas in the atmosphere and allowing the vent at the high points of the shell, it would allow the stratification of the gases contained in the air. The CO2, being heavier, would replace the nitrogen and oxygen naturally in purification processes, with much better results, from the point of purification, of emissions, dimensions, additives and energy consumed. We'd better use sustainable processes such as photosynthesis neglected, carbonation, nitrification consuming CO2 purging or protecting the environment. Dalton's law the partial pressure of the gas says: "The total pressure of a gaseous mixture is constituted by the sum of the partial pressures of each gas component of the mixture itself and the partial pressure of each component is directly proportional to its percentage participation to constitution of the mixture. " The Henry's Law says: "A constant temperature the amount of poorly soluble gas dissolved in a given volume of liquid is proportional to the pressure of the gas above the solution." We can deduce that

the 0.039% of CO2 present in the atmospheric air, under the cover can become hundreds of times: even in the water can increase its influence hundreds of times, at the expense of other gas lighter, which will give way, and will leave the water will rise in the atmosphere. In greenhouses, the gases will be removed from the action of the wind and will be able to stratify according to their specific weight. Consequently, the processes of autotrophic CO2 fixation, such as the Calvin cycle of photosynthesis, nitrification, the carbonation cold rocks can be enhanced by consuming larger quantities of CO2. Even if there are regulatory mechanisms biological and physical that does not allow to overcome the photosynthetic production within certain limits, there are limits to carbonation cold of calcareous rocks if we stivarle crushed, increasing the contact surfaces of thousands of times movimentandole and renewing with mechanical systems. Systematically exploiting these applications with low energy consumption, long ago, we could speak of a “global purification.” The sludge and biomass produced in biological ponds optional vertical + covered greenhouses mechanized production (SBFSCV + SMPCV) will feed into the still fresh “digesters dehydrators composted linear” (DDCL) located in DCPTCG Nearest, without the need for complete digestion on the spot with higher yields and with no emissions into the atmosphere. While the majority of the CO2 would be transferred to the water by means of carbonation, except in special cases where we have large surface areas available for use photosynthesis. Using the water and composted as a breeding ground, pollution and CO2, such as fertilizers, saving energy for oxidation, we could afford to make these great works and consume a little energy for lighting, using LED lamps, consuming 1/25 of the old incandescent bulbs, without going into detail, of every detail.

As the engineers of the past have forgotten to cover the plants, the modern technical, once sufficiently lowered the

temperature of the smoke, they continued to emit them into the atmosphere. They have well cooled fumes to increase the thermal efficiency of combustion, but have not thought to continue cooling and neutralizing basins covered by the above processes for clean energy production. Strangely, the usual silence greeted this proposal made by myself, even if the proposal was not articulated how I'm doing with this publication. Who is the trade does not need many details. Just a place to start working on a topic that you know. Or so I thought before being forced to deepen these topics alone. It seems that the manufacturers of thermoelectric power, do not want to compete, in terms of product quality, with the other renewable energies. They have not lost their precious time even to contradict me (if you have not chosen to use the covered purifiers to clean energy without making me partaker). However, the D.C.P.T.C.G. go far beyond purifiers covered. Can clean fossil energy, including coal, but may be fed by pipelines or by regasification plants. In the latter case, you could take advantage of the cold produced by the gasification of natural gas for cooling the cooling water of thermal power stations. The technicians of the past, they have some mitigating circumstances, it was not easy to see some aspects of the "DCPTCG" without the technological advances today. But modern technology, have no attenuating still do not see it, even if it is at hand, and are almost three years that I acted to show it. The silences endorse the works that current unsustainable, not only, do not scratch the problems, but aggravate them and steal valuable resources for sustainable projects. Even scientists are super specialized and do not see the global solutions. The i. P.C.C. (Intergovernmental Panel on Climate Change) they thought it was enough to improve the air cleaners on the one hand, and on the other, the filtration of fumes, as well as, the capture and burial of CO2 from power plants, and would solve the problem of pollution global. It does not. If we reason, we realize that the purifiers are a concentration of nonsense compared to the two major problems facing the planet: the need to reduce CO2 emissions and

alkalize a greater amount of water that we send to the oceans. Instead, the system that has been created is characterized by degenerating drains or sewage sludge and that little treat, I sversano a great deal, and emit CO2 dell'alcalinizzazione not even speaking. In Europe the laws that allow the exit of the water purifiers can have a PH 5.5, regardless of the pH of the receiving water body. Only if it is water basins particularly sensitive, this limit is high. With these rules and systems we should continue to fight global pollution?

How to change the treatment system are party outside of the purifiers (v art. Depuration in homes and sewers), to improve the production of nuclear energy delivery from outside: from chimneys and discharges of cooling water. In these overlooked elements are hidden room for improvement and environmental performance. Thermal power stations have forgotten over 60% of the thermal power is dispersed in water and in the air. CO2 emissions could be exploited as a resource to produce carbonates that lack the oceans and biomass to produce new energy as wasted heat could be used to heat digesters and production greenhouses. The largest egg of Columbus that no one has seen in almost a hundred years of existence of the treatment plants and thermal power plants is to put together treatment plants, thermal power plants and energy production. It was easy to see that this egg was well hidden, especially from systems used for expelling fumes and purification systems that deal with very small flow rates and not involving air treatments. Suffice it to say that the waters that pass in thermal power stations (for cooling purposes) are tens of times higher than those that pass in the treatment plants. Even if you are peaking at DCPTCG and previous publications I stopped only at the prospect of cleaning the thermoelectric power, it is possible that this cleaning has attracted so much indifference in the Ministry of Environment, CNR, ENEA, ENI, ENEL? Even though I was not entirely convincing, a flea in the ear I put it? It just seems to NO. I filed four patent

applications on these topics, but in the hands of the undersigned, are worth less than nothing, while in the hands of these PUBLIC could make a very important contribution to the growth of the country, if you come down from their pedestal. At the international level, what are the mega-summits to Kyoto after 1997 if they refuse to talk about the global water purification? Is it possible that no one will realize that until now, at the level of environmental protection we have produced only the expensive palliatives? The 195 sovereign states have not spent a single euro in global environmental protection systems. Some people (including Italy) have preferred to invest in CCS (End carbon capture storage) that increases the consumption of fossil fuels by reducing the already low yields of combustion. Possible that the producers of thermoelectric power to be content to do business with the CCS and increase consumption by lowering the returns? All have invested in renewable energy that are neutral to the environment, but do not protect against other sources of pollution. Who should defend us from acidification of the planet? Who cleans the water, air, waste, those who produce energy? No one can do it alone if you do not bring along plants, as would a good plant engineer. But for putting together the systems must design them so that they can be put together. I had to dispute, with new proposals, the entire existing waste water treatment system, invent the sewage purification, purifiers covered, the global urban sewage, anaerobic digesters linear, ponds biological subsequent vertical. Once you have created virtually the existence of all these plants, which do not exist, virtually always, I could affiancarne part to thermal power stations to recover heat, CO2 and produce new clean energy. First I thought to change the chimneys, which would no longer be the final element, but serve to cool the smoke and improve purification. We could call them “cooling chimneys and flue gas purification” (CRD). Subsequently, the fumes could continue cooling treatment and purification from CO2, mixing them with air and water in a covered area where mixing would

produce acid rain and water vapor which, together, could corrode the rock boulders suspended. This environment would be called “greenhouse covered limestone mechanized vertical” (SCMCV). In this particular environment, rich in CO2, the limestone, carbonates would be corroded by enriching the circulating water, such as rain and consequently into the basin below (braa). But knowing that CO2 is a great nutritious because they do not exploit it also to produce biomass energy that will be used to produce energy. In fact, once cooled fumes and reduced the concentration of CO2 in the air, we can produce biomass energy creating limestone next to the greenhouses, greenhouses mechanized production covered vertical (SMPCV), in which you could consume more CO2. To assume these greenhouses I had to tap into distant memories of the time that I worked in the industry the system of mechanization of processes, by means of hanging rails, descenders and motorized trucks, racks equipped for working the soil in place of heavy tractors. But, once verticalised biomass production, why not verticalize also the biological ponds, using the optional (SBFSCV), less deep that take advantage of the surface layer of water to consume the organic and inorganic nutrients through photosynthesis. Verticalizing ponds can have the entire surface we want and even take advantage of the vertical to gradually increase the water purification, as they rise to the top, entrusted exclusively to photosynthesis and surface aeration. In case of need only the lower floor may be added to a ramp of oxidation by means of electric blowers. In terms of energy absorption, we should consider only the energy for lifting and eventual enlightenment. We will see later that with this system we can get, even desalinating water.

Would not it be nice to see the smokestacks, at least those most polluting, without plumes of smoke blacks, not just those cells CTE, but also those of ILVA, incinerators etc.?

The environmental plant engineer must envisage all possible solutions because resources are limited, including limestone, but also because the photosynthetic production in greenhouses is growing. This can consume a lot of CO2, but also highly polluting soils and groundwater below. Without any doubt should create productions off the ground, verticalize plants and recycle water used depurandole in the same facilities. The vertical and the mechanization of the greenhouses is a consequence of this new production system that might seem overly sophisticated and expensive, as we are used to seeing the agricultural production, but when you consider that the system, as well as producing biomass energy is both a cleaner air and water and can lead to the development of new employment opportunities in agriculture, in the electromechanical industry, in environmental protection and in the construction industry, so it is uneconomical. With an unhappy expression in an interview published in the Wall Street Journal, the former minister Fornero, asserted that the work is not a right. You're wrong and politicians have a duty to create employment opportunities, especially in the priority areas for environmental protection and to ensure energy and power. Italy is a republic founded on work. I would not make a play on words, but the politicians and technicians who can not create jobs, they do their jobs well. Politicians should be able to recognize the projects of public utility, not blindly grant funding to non-competitive sectors. Regions, provinces, have been created to bring politics closer to citizens but have become only source of expense and management. When it comes to designs and innovations are not interlocutors even locally. The cost of energy in Italy is among the most expensive in the world. It is a ball and chain for the competitiveness of our companies. Our waters are polluted at all levels and are a big problem for the competitiveness of tourism (as well as for the future of our children). Oil and gas are our biggest expense in the balance of payments. Our businesses and our young people can not find work. All these great problems could have only one solution: DCPTCG

10) ENVIRONMENTAL PROTECTION AND ENERGY PRODUCTION PLANTS

Do not go into the merits of the reliability of the rating agencies, which assign scores on the economies of individual countries, I say only that, if there were the corresponding agencies, able to evaluate objectively the efficiency of the countries in the use of energy resources and environmental, no country on planet Earth deserves a triple “A”, while on the economic, currently, for agencies, this coveted recognition they deserve only a dozen countries out of 195. For myself, the gap between rich and poor is increasing year by year, not only between countries but also within countries, is due, in large part, the inefficiency of the management of energy resources and environmental . The new energy, as imperfect, inadequate, are already in crisis for the supply of raw materials, only partially attenuated, environmental problems and can not compete with those for the costs of fossil fuels, which are already unaffordable for poor countries, while becomes more risky for the environment the extraction of oil thousands of feet below the ocean depths. Even if we were ahead in the production of renewable energy, we could not counteract the natural aging of the planet. To do this we need to shorten the anthropogenic carbon cycle processes, as I try to explain from simple plant engineer. Serves an analysis of the environmental protection systems available and above all, the ability to analyze the usefulness of the same, for the purpose of global pollution. What is not needed for this purpose is only an unnecessary duplication. The purification

systems currently used are only palliatives that can not affect local pollution globally. In fact, have a negative effect. We can not continue to keep separate areas environmental, energy and resource recovery. Despite great advances in technology, huge thermal energies are dispersed in water, and immense resources of CO2 in the atmosphere, to the detriment of the environment, vast resources wasted in the waste cycle and even in the most modern cogeneration. Thermal generation, revised and corrected, could be much higher, for the returns, with new energy production, being able to produce clean energy and environmental protection at the same time. You just need to expand conceptually and physically thermal power plants, largely in existence. Probably, they are the first to define the CO2 a resource. I think that, at least in the case of thermal power plants, and large thermal plants, which account for the bulk of global CO2 emissions, we could create the conditions for plant turn this gas resource, and recover the heat, along with other important innovations, which would lead to at least doubling of energy efficiency. The location where the plants are made of environmental protection is very important to take advantage of the powerful tools provided by nature is to produce energy, both to neutralize the pollution. Quest 'aspect has been partially exploited, with the hydroelectric plants and using the waters of the rivers and ponds for cooling turbines, capacitors and reactors thermal power plants. But, in general, natural resources are used rationally to produce power and energy. Today, we have almost reached the maximum technological development, in order to make further progress, we must exploit these resources by reviewing the best way to design the systems. There are many who write successful publications on the state of the environment (especially climate scientists), that make us a glimpse of a realistic catastrophic future, but in the meantime, other tills creating works of unsustainable environmental protection, that solve a problem and create many others. The present systems of environmental protection are: industrial water purification

and urban areas, recovery of waste for recycling, combustion, composting, landfill sites. anaerobic digestion, co-generation, reforestation, wetlands. In the opinion of the undersigned, are resized and many others are missing that were never made, such as domestic sewage, sewer, lake, river, port, coastal, of which I have already mentioned in other articles. These facilities would be able to improve the environment more than many others exist. For those who dealt with only by thermal power stations and treatment plants, separately, these works may seem fanciful and do not deny that despite the years, the fantasy still supports me. But they are also the result of experiences, participating, even by anonymous technical, to the realization of large-scale industrial plants, large ventilation systems, large pumping stations, lifting, Water purifiers, water purifiers. Without these experiences and in-depth reflections imagination would not be enough. These implants, contrary to the existing ones, which emit, subtract CO2 environment. Above all, D.C.P.T.C.G. may be the only ones able to close the carbon cycle with combustion processes, nearly century-old recovering waste energy and convert CO2 into a resource to combat ocean acidification. These great innovative works would result from the symbiosis of thermal power plants with scrubbers, but not those designed by caste and corporations. The water used for cooling of thermal power stations, for almost a century, fits with the modern demands of energy production using biomass and organic waste, which need wasted thermal energy from power plants to heat the anaerobic digesters. However, instead of increasing the thermal power plants, providing them with digesters, engineers are building new power plants that waste heat to heat the digesters. And no one thought to clean energy. For them, the biogas is already a clean fuel. Clean or not clean is always CO2, above all, we need to send to the sea carbonates. And ‘the concept so difficult? The large CO2 emissions from power plants, even with the cogeneration system, fit with sustainable systems known (alkalinization, carbonation, photosynthesis, nitrification) that absorb this

gas through large bodies of water. But it is not enough only water, you need to create suitable environments to facilitate the absorption of CO2, the production of biomass and biogas. It should imprison the CO2 in greenhouses built on the water surface, to increase the specific pressure of the gas in water (Henry's law and Dalton) and produce, through photosynthesis, biomass-to-digest in the digesters; But the bulk of the CO2 would be consumed through alkalinization of water, which would be agreeable to the oceans. These particular coincidences were always present, but never exploited. Had escaped, in part, to the undersigned, present their purifiers covered, although touched on a number of occasions. They came out more forcefully entering into the details of neutralization of CO2 from thermal power stations. In this case, I had to deal with the huge amount of heat contained in the flue gas and especially in the waters. Those could be other problems to solve have become the main resources for arriving at what might be the best energy solutions conceivable. In fact, we have established that we can exploit the vast resource of thermal water and exhaust gas to heat the digesters of immense biomass energy. These waters come out from the digesters at a temperature still good, indeed very good for heating greenhouses, above ground biomass production of energy and no. This production may also contribute to the heat of the fumes and CO2. Current waste that have fossilized the effectiveness of power stations, below 40% is recovered 95%, but the overall production efficiency would be much higher than 100% because these works would also act as purifiers, composting, incineration, biomass producers. Another opportunity to be seized in these systems is the use of the same CO2 as a corrosive element of limestone, replacing calcium oxide, whose production results in CO2 emissions. We will return to this subject.

To understand and to understand the economic strength and global environmental depurcogenerazionecovered (DCPTCG), I

tried to make a preliminary design of a large plant, starting from a thermal power plant to natural gas by 320 MWh, adding the FSV complete (SCMCV + SBFSCV), and DDCL for the exploitation of the entire heat of cooling water and the neutralization of the CO2 content in the flue gas. It may seem a paradox, but the potential digestive, which we have neglected until now, leaves no room for any environmental solution in the same territory, if we want to saturate it completely. And it would be stupid of us not continue to saturate the energy resources that we have already paid. Apart from all, we did not realize that not saturating the plants, we have seriously damaged the environment, leading to the threshold of global warming.

Other solutions can not compete, both environmental and economic. Agree on the territory strategically deploy plants DCPTCG, avoiding unnecessary duplication, which play, with lower yields (and in general, with higher emissions, not neutralized), only part of the functions of DCPTCG. I speak of the existing thermal power plants, cogeneration plants, anaerobic digesters, treatment plants, landfills, composting, incineration and also new energy sources, which can not be competitive for the costs. Only thermal power stations can be saved, provided they are the right size for the surrounding area and can be accompanied by FSV and D.D.C.L.. If we extend the economic results obtained at national level, within a few years of operation could restore the public debt and the environment without burdening citizens with unfair taxes to pay for the wrong plants. The current energy and environmental solutions, being incomplete, complicate the closure of the carbon cycle can not be intercepted by making CO2 emissions. Continuing to pay for facilities that do not close the carbon cycle enrich only those who designs, builds and operates, while all others will pay unnecessarily. The bills, to say the least, could be halved, being issued by a single operator (sewage, electricity, garbage). Recovering resources can not

only decrease costs. With current systems, acidification of the planet increases more and more and it will take more and more plants. It ‘a race that is impossible to win. Suffice it to say that with the DCPTCG, thermal power plants could at least double the current efficiency and produce clean energy, including coal, consistent with the available space for the insertion of plant accounts. Of course, where the integration is not possible, it will require higher costs to resize or move the thermal power plant, but also agree to pass to the system DCPTCG. This system could and should be extended worldwide. Do not delude myself that this is done, at least not right away. Probably, they will continue the silence on these issues, without which no authoritative character of the scientific world, will seek to deny them, nor to lean on. Probably, the world leaders of the environment, will continue to build the usual power, the usual dumps, the usual treatment plants, the usual incinerators, until it will be the public to understand and to mobilize for water purification systems and global energy production , which among other things, will create many opportunities of stable work. Who wants to go directly to the numbers can jump around and read the final part of the document. For the silences received, until now, by the experts, I have to toggle the description, technical, social and moral order, at least they understand the concepts, especially the common people. I do not pretend to exhaust with this publication, the many topics related to global depurcogeproduction thermalcovered, I just hope that the competent bodies to take into consideration for further study. Above all, we need to consider the sustainability of this system, which would use largely existing plants, which, at present, working with very low yields producing energy is not clean (CO2 emissions) and waste heat to air and water (60-65 % of PCI). If we consider the added plant (SCMCV SBFSCV + + + SMPCV DDCL, gasometer, etc..) As integral parts of the power station of departure. As said, the total yield thermoelectric widely exceed the 100% (due to the sum of the original yield more than the product thanks to the recovery of heat, which

allows the production of biogas, consumed in the same or in an adjacent central). But to this we should add the results purifying air (reduction of CO2) and water (consumption of nutrients, carbonation, alkalinization), no system of energy production, solar, wind, hydro can help. We could say that the thermal power plants and large combustion plants that now are the most important source of pollution of the planet, coupled with a DCPTCG could become the most important source of protection. It did not end there. As I mentioned, the buildings through synergistic vertical (FSV) will get a radical modernization of agricultural production systems. The production of energy from biomass, which is establishing itself throughout the world as renewable energy, alone, can make only a small part of the process that would take place in DCPTCG. In this, also the quality of the biogas obtained would be closer to the natural gas to the common biogas, having the possibility to impoverish the percentage of CO2 present, transferring it to the basin covered water (braa), as later explained. If it is true that with global warming the trees emit more CO2 than they absorb, our children should have the opportunity to defend even more efficient. You have to fertilize fields bringing to land the sludge that leave the plant (DDCL) as a “quality compost,” alkalize the river water in large basins covered to counteract acidification of the coasts and the infiltration of salt water into the ground to drinking water. The increase in carbonate hardness at the mouths of rivers has also this. The macroscopic reduction of global pollution and the recovery of economic resources (heat) and environmental (CO2), today do not occur because no design group authoritative, public or private, he reasoned in terms of global environmental design. Everybody thought only to solve technical problems internal to the power plants and water treatment plants, keeping separate the areas of air, water, and energy. But, if we analyze objectively the results obtained, we realize that those who design systems for water purification produces emissions that harm the atmosphere, so does the designer and nuclear power plants (even without

nuclear accidents, just consider the steam and the heat produced and not recovered). We do not speak of the steel mills and industrial plants, in general. The oceans and atmosphere have become collectors of pollution and global warming. But while the oceans fossilized waste, which although not the optimal solution, blot, the atmosphere has no chance of defense, if not through the slow absorption of the gas through the stratosphere oceans and the earth's surface. Sooner or later the absorbers had to reach a saturation point and are reaching. The earth has never absorbed most of their abilities, indeed declined through deforestation and many areas are into deserts, the oceans are absorbing a lot more of your abilities, but becoming more acidic, The thermohaline circulation is slowing down, the ozone layer is shrinking, glaciers, melting. No one thought of combining heating plants large wastewater treatment plants covered complete anaerobic digestion, as I propose. Nor have thought to achieve great biological ponds covered vertical (SBFSCV) to increase the production area and stratify the purification process in stages, as the water rises towards what could be a water tower that feeds an irrigation system or distribution of drinking water, starting at the base by polluted water. The S.B.F.S.C.V. would also represent an incredible water reserve of fresh water to be used in case of drought.

11) THE ROLE OF D.C.P.T.C.G. IN FUTURE ENERGY STRATEGIES

Even a partial implementation of the system of DCPTCG would be a great success in the management of energy and environmental resources that would have no comparison with existing systems, but the full application would be in total control of man over

nature. The only system that could enable you to cope with the increase in world population and the resulting increase in industrial and agricultural activities not continue on the path of accelerated aging of the planet began with the advent of the industrial age. On the other hand, would be unconscious continue on the current path. The industrial and technological advances sooner or later would have to produce antibodies to the evils they themselves generated. The water circulates through plants distribute antibodies to the entire planet. The alkalinity of the carbonate hardness of the water produced in these plants will be diluted downstream of them mixing with the waters of the watercourse that will not be passed through the plants. Today, state of the art, both thermal power plants and water purifiers, of course in different ways and different amounts, they emit CO2. But what is serious, they do nothing to alkalize the water leaving, knowing that the oceans are becoming more acidic. If we think that only by covering the plants, avoiding the wind disperses the CO2 in the atmosphere, without doing anything else, according to Dalton's law, the concentration of CO2 in the water can rise to several hundreds of times taking the place of nitrogen and oxygen, which being lighter than the would leave the place, even within the limits allowed by the solubility available. It's up to us to capture and transport the CO2 under the cover (see the comprehensive treatment in the city) and this concentration increased once there are plenty of systems to prevent this gas returns to the atmosphere (alkalinization, photosynthesis, nitrification). To increase the contact time in the absence of space verticalizziamo plants (FSV with calcareous layers, water, vegetation). One may wonder what all of the international conventions, from the Kyoto protocol on, if escape so simple, sustainable environmental solutions, while experimenting with complex solutions and unsustainable? Many designers have set their faces to exploit the waste heat in district heating systems that may not work for the length of the networks and the depth of distribution. While digesters and agricultural greenhouses can accompany them to the power plants and the

distribution network can be much more simple and low cost of digester liquid digestate, which in a closed loop or other waters, it may be free fertilizer for energy production water of the ponds biological (SBFSCV), the solid digestate could be the fertilizer free land for agricultural production, including energy greenhouses mechanized vertical (SMPCV). We did the full of inconsistencies plant more evident by those who must provide energy and protect the environment who should and who should support agriculture. If energy technicians and those of environmental protection could agree together creating the installations, the first would not waste heat and CO2, giving it to the latter, and the latter would return to the first a clean energy source, at least in plants depurcogeproduction thermalcovered global. Synergy with the above-mentioned energy efficiency can become higher than 100% and 1000% purification, whereas today the environmental prevention is non-existent. The D.C.P.T.C.G. would be to artificially increase the buffering capacity of the ocean waters. The cost? Whereas the thermal power plants already exist, more than 50% of these works plant has already been paid, the rest would be paid by only a few years, thanks to the recovery of wasted resources. At least where there are spaces needed to transform the central DCPTCG. But we must not forget the employment opportunities offered by this colossal transformation of the environment that would cover all sectors, dall'edile to the technological, agricultural, tourism, transport and services. What is the cost to the company for a job?

From the strategic point of view – environmental, thermal power stations, in general, are on the right place to be converted to cogeneration depur-covered global near water courses or reservoirs. Need to verify, on a case by case basis, such as inserting the additional works, possibly resizing the power energy produced at that site. It is worth remembering a few numbers to frame the scale of the problems:

The total volume of water on earth is 1.4 billion km3. Surface waters, including the ocean, are nearly 500,000 km3, evaporate, forming clouds. These, as a result of changes in temperature, turn into rainwater. The majority of the rain falls in the sea. Only 111,000 km3 reach the earth. Of these, 71,000 are returned to the atmosphere through evaporation and transpiration, while 40,000 km3 flow out through the rivers and the underground stream, returning to the oceans. From the latter group preleviamo waters for our consumption and use, including the cooling of thermal power plants, returning always in worse shape than when we have drawn, in terms of biochemical or thermal pollution. In some cases, the cooling water and the preleviamo give back to the sea. But the concept is the same. The thermal-hydraulic works, of which I speak, they may seem huge (because the designers are not used to thinking in terms of global environmental protection. Who makes large hydraulic does not deal with water treatment), but cover a small fraction of those 40,000 km3 of water that does not have anything against the total mass of 1.4 billion km3, on Earth. Although, infinitesimal, for the oceanic dimension, the treatment that we would do would be strategic, not only for the sea, but also for the atmosphere. If large works, such as plants depurcogenerazionecovered, works will be infinitesimal to the size of the planet, what are we to say of the existing treatment plants which treat less than one cent of the water that would pass in depurcogeneratori covered, and they are non-functional strategic environmental purposes of ocean acidification, on the contrary, increase in greenhouse gas emissions?

This question I put it in several articles before I got to DCPTCG, but no one ever responded. All existing industrial plants, including those used for environmental protection, emissions of greenhouse gases (it will be so until the discharges will not be discharged into the FSV). In light of these simple considerations, it seems possible that in the

purification and energy sectors have resolved technological issues are important and escaped macroscopic problems, such as those I’m trying to point out and to develop, with great difficulty, having been snubbed, since the first publications . The scientific facts that I’m finding, though I can not express them in the most effective, appear to be sufficient to confirm that the purification systems and energy must be urgently changed. Better yet, have to be combined. No one has ever invested EUR prevention systems environment upstream of the treatment plants, where I found a completely unexplored. The “covered purifiers” are born from the proposals in the field of basic sanitation. All these proposals, of course, can be improved, are still waiting for comments and criticism on the part of public and private technicians, who do not come. If you do not want to act, defend, at least, the choices made, which I feel are wrong. I like to continue to think of as technical and creative people simple, seemingly distracted, but intends to follow thoughts that can make fly planes, trains walking, communicating at a distance, producing cars. Always engaged in proposals for growth to improve human welfare. Because environmental protection can not grow? If I got into the field, it is not because I consider myself an experienced more good than others. I did it because I see nonsense, as if the engineers were working with tokens, like the computer, do not see beyond the goal set. They respond only to the contractor. I may be wrong on some details, but in essence I’m sure you’re right. If you do not want to deal with the problems in a sustainable way, it’s time to stop talking unnecessarily of CO2 and global warming diagrams and tables show, which will also be reliable, but we do not reduce emissions of one gram and not only those. I want to briefly summarize the main proposals snubbed, which can be studied by reading the previous publications. These, read in chronological order, also mark the path that led me to the “DCPTCG.” It is not essential to do everything that I propose, although it would be desirable for the environment, but, at least. from the sewage drainage system. I have proposed an

exhaust system for homes that chemical physical dimensions without visible, except for a mini dosing of calcium, would enable the saving of 25% of potable water (while the networks will lose 50%), at the same time preventing the formation of hydrogen sulfide in sewers and allowing a first precipitation of inorganic phosphorus from detergents. I proposed sewage purification modules with vertical aerobic purification and sewage sedimentation aided by tankers extractors and disidratatici-stabilizing sludge. In fact, the purification process would take place invisibly, in the same urban environment, preventing the formation of hydrogen sulphide, and the degeneration of the slurry, without the need for a second network dedicated to rainwater. In the sewers circulate clean water and rainwater. The second drainage system should be dedicated to CO2 and the smog of the city that are heavier than air and there could be easily conveyed. The mixture of air and CO2 captured and compressed it would be used as an oxidizing fluid in alkalized water. In the basement of the city water and the air depurerebbero each other, thanks to sunken basins artificially lit to facilitate photosynthesis (See Article. Purification The global cities.) This system is being aerobic not produce bad smells, can also be used for isolated dwellings and is capable of purifying water in accordance with the most stringent regulations for discharging to the ground or in water sensitive (also poor countries lacking sewers could benefit), but could, simultaneously, even, also neutralize the flue gas of boilers and fireplaces. Each house could be independent from the environmental point of view. I proposed purifiers covered that may be immersed directly into water bodies, purifying, according to circumstances, the waters entering the basin or those present, consume CO2 in the process, without outputting it in the air (V.art. New cleaning solutions global.) The system is also applicable to the coastal areas. With this system you could also purify the waters of the old city like Venice, where the ammonia nitrogen and eutrophication have killed all life (recycling of the water in forms of oxy-nitrification and

photosynthesis). In concrete terms, a widespread environmental pollution and almost imperceptible, should correspond environmental protection as widespread and imperceptible. Wasting public money only major purifiers that do not care about air pollution and purify the water that the same sewer system has degenerated. But, faced with large concentrations of heat and CO2 emissions of a power plant, the plant infrastructure required proportional to imprison these great resources. They are, in fact, great resources, not big problems, as we have been taught to think. With these solutions, our environmental authorities would have had to go to Durban in the first decade of December 2011. However, I would not be heard, as I listened to when I invited them to speak purification global climate summit in Cancún 2010 (See Article.: In Cancun will not talk about global water purification). Better to talk about it now, after two more vertices, the outcome announced bankruptcy and found. The reality is that the leaders are useless if you lack the courage to radically change the way you manage the environment. What is missing, above all, skilled supervision, purified by partisan interests. Today, most of the pollution is spilled with rainwater, without passing through the purifiers, which can treat very little. Several generations of designers have faced and still face on single or double drainage system, that solves some problems and creates many more (see The purification in homes and sewers.) It was thought to be involved in the treatment of sewage also the treatment of municipal waste and polluted air. Thermal power plants can not solve by themselves, in a sustainable way, the problem of CO2 emissions, nor can they recover the immense amount of heat lost in water, if someone does not bring near an appropriate facility that can take advantage of the warmth and capture those emissions. If Mohammed will not go to the mountain, the mountain could go shattered, along with concrete demolished by FSV to consume CO2 alkalinizing the waters, without producing additional CO2 (heating at 1000 degrees rocks): by increasing the contact surfaces, covering the

plants, taking advantage of the laws on the solubility of gases and granting him the volumes and the time required, you can get equally great results. There is no need even of the trials. You just have to make the first ski, fine-tune them and learn how to handle them. No one has tried to coordinate these separate sectors. Not even the IPCC, the Intergovernmental Panel on Climate Change. Supervisors careful and reliable, you would have noticed that the air cleaners contribute to the increase in CO2 emissions, while they might be the means to reduce them, even turn them into an asset, and that the power plants disperse 65% of the heat energy in water and fumes, that could be recovered, while modern cogeneration waste 50% of energy to heat the sludge in the digesters. The I. P.C.C. and national energy agencies would have noticed, as we have noticed myself, that putting together the systems of the various sectors, the waste of one, could be valued in the other and vice versa. If I had seen in forty years of activity plant a single plant environment that works like it should work, I would not lose my precious time retired and even wasted scarce financial resources to file patent applications in the public interest, that the insiders do not want. These are decaying, one after the other, not potendomi bleed to keep them alive. But, I gnawed inside the inability to scientifically prove the inconsistencies of water systems (which make water from all sides); purification (which sversano pollution and emit CO2) and heat, that heat detrimentally water and air, as well to emit CO2. Even today, all of them are engaged in the study of details of individual sectors, while the general strategy is wrong. I remember the words of the last Minister of Education and Research, ing. Francesco Profumo, when settling, as president of the CNR, he promised more and less patent publications. I think, however, that this body should make their own patents are more of a pensioner penniless. Patents as the purification sewer, covered, global, linear digesters, the chimneys CDR, warehouses vertical limestone, ponds biological overlapping the depurcogenerazionecovered, cereal and fruit and vegetable

greenhouses vertical vertical, anyone who gives birth, can not be binned. Not if you can afford a country that does not grow more than twenty years.

12) THE NEED TO LEARN FROM NATURE

How should operate environmental plants shows him the nature of the climate system heat, which, however, has a serious flaw, the inability to evacuate the sludge produced and is forced to fossilizzarli. The increase in world population and the advent of the industrial era has challenged this system. The thermalcovered depurcogeproduction global (DCPTCG) avoids the fossilization of the sludge, which nature can not avoid. By extracting the sludge can immediately close the carbon cycle and produce biogas which must be consumed immediately, as in the human body physical activity should consume excess calories. Any issue that contains CO2 should be neutralized at the origin, in the waters because the CO2 in the atmosphere does not react, while in the water, it could also become a resource, producing biomass and carbonates. No matter the final product. What is cement, lime, water purification, waste treatment, energy production, biogas. Do not intervening, as we have done up to now, we have left the field open to eutrophication, urban smog, the melting of glaciers, climate disasters, economic and health. These things are a lot to tell and I would not have participated in the chorus of complaints if I had not had any solutions to offer. Strangely the other complainants, such as environmental organizations, are silent on the global purifications. Probably, like everyone else, they just want more investment in the environment, without considering the merits of the technical solutions, not to

change anything. Little did they realize that the world's banks can not print enough money to fund an environmental protection becomes less and less possible it will become for global systems, if you do not immediately realize infrastructure. The ocean acidification will be irreversible if not immediately interrupt in protecting the environment through energy.

And 'correct and can not be otherwise, that the design of environmental protection is in public hands, but the state of the art is in private hands, based on the marketing of machinery, equipment and additives, not always indispensable. The majority of companies working in this field (such as the small company where I worked) must adhere to specifications, disciplinary and projects already defined. It 'impossible to propose something innovative, mainly based on prevention, which should anticipate the purifiers. The air cleaners are designed relying on organic loads and degeneration sewer that precede them. Sustainable design, based on prevention, not reported even in undergraduate textbooks. All that would be strategic in the area to improve the protection of the environment is avoided, will only improve the internal details to treatment plants and thermal power stations. What would it take to innovate at least the old Imhoff, deepen them and inserting at least one stage of oxidation (and possibly photosynthesis with LED lamps) above the sediment, as I proposed? It would be a cleaner cheaply, and perfect space saving. Just read the specifications and technical specifications of the tendering of public facilities to see, clearly, how are conditioned by the major manufacturers of machinery for the environment and by operators. These are the most reluctant to incorporate the concepts of a treatment based on the prevention of acidification and CO2 emissions, since, on the one hand, there would be fewer cars to be marketed and on the other you should get out of the convenient management in closed 'scope of the systems, to manage the

whole territory. Environmental protection can not be closed in pens called sewage treatment plants, while only a very small part of the slurry passes through it, too, will get you there in the worst conditions to be treated with acceptable costs. Just a bit ‘of rain undermine the system based on mass balances unlikely, but calculated with painstaking precision. But do not just increase the amount. They will always be insufficient, because water purifiers must take on the task of removing the CO2 from the environment not to increase it, as they do currently. What does it take to make it clear to insiders (including ministers and scientists) not only purifies to solve the local problem downloading to posterity global problems (since degenerate with exponential laws), as do the existing sewage treatment plants, landfills, composting plants, incinerators, power plants?

Some more, some less, but all these facilities, utilities, disperse in the environment, immense amounts of acidity, greenhouse gases, heat. The increase in CO2 emissions is not the fault of non-nuclear policy, as many technicians and politicians would like to believe, but the failure to protect the environment. Prevention would be and is better than cure. Personally, I never mixed in the same urban and industrial sewage plants. Companies should completely purify the water they use in specific plants, while the urban water should self purified sewage in the same location, along with the greenhouse gases produced by transport and heating (V. The purification global cities, cap.32) A further treatment of the wastewater, urban, industrial, agricultural, stormwater it should have all along the entrance of water bodies covered in large treatment plants, with low energy consumption (see the protection of water bodies, ch. 34), or systems, more comprehensive, which would also involve solid waste and biomass digestible energy: “Depurcogeproduction thermalcovered global” (DCPTCG) are not possible without global water treatment plants streamline processes and do not cover them

for limiting atmospheric emissions. The current systems can not globalize, and can not cover. Strangely, in the World, no one questions the current purification systems, and discusses the challenges of waste management there is turmoil in energy production to find new sources. Instead, we should first replace the strainers. No one wants to admit that the treatment plants were born when there was no talk of global warming and today manufacturers and operators have no interest in changing it. But the environmental authorities, teachers and technicians public what they're looking at? The current system fails in what should be the main targets, because the disease is more severe on the planet is the process of acidification and global warming, which melts the glaciers, softens and eutrophic waters. The basins of oxidation, sedimentation, equalization, thickening, digestion, emit CO2 (and methane when they are not equipped with cogeneration). This means that much of what they do or would do good, if they worked, through water purification, locally, is undercut at the global level by the contribution of acidification caused to the environment. But other damage, the system causes them to produce hydrogen sulfide and sulfuric acid in the sewers, sewage degenerating, breaking up the cement pipes and creating non-extractable deposits that cause blockages and flooding with the first rains. The trigger flood starts right from clogging sewage. The acidification of which do not care about the designers, licensed design public, should have priority. No study design, public or private, I know, that you have bothered to protect water bodies, except through sewage treatment plants, which as I said, they treat the hundredth part of the water that would be a cleaner overall. Do not even bother to adjust the pH to alkalinity of the receiving water body (the simple impact of water with alkalinity different free CO2 in the atmosphere, regardless of pollution). Wherever we turn our eyes we see a fireplace or chimney, no environmental pollution that shoots into the atmosphere. How can we pretend to fight ocean acidification and global warming if those who should purify, summing up, in reality, pollutes?

However, what escapes to treatment plants (agricultural water, rainwater illegal dumping) is inevitably pollute water bodies. Preventive treatments. No one speaks and no one writes. However, the texts describe in detail chemical and biological processes and various laboratory experiments.

The purification global cities, cap.32, could be the solution to protect the city from the smog, without relying on the hope of rain and wind that carries the insoluble particles in the atmosphere to make other types of damage, such as the melting of glaciers . As I explained in the publication cited above, even the smoke from wood-burning fireplaces could be neutralized by installing the electric fan driven by temperature sensors that capterebbero fumes channeling it in the sewer and sewage treatment plants were in these covered, greenhouse vertical buildings, etc.., while nitrogen and oxygen, lighter, date back to the atmosphere. The depuration river, lake, port, coastal, could protect water bodies. Apart from the environment, in times like these, the global employment crisis, you can not understand the lack of growth of environmental protection is lacking of the basic installations.

We men, we have no chance to counter ocean acidification, the size of the phenomenon, once the buffering capacity of the alkaline aqueous solution, they are made, and we are overcoming. Even today, this capacity has been reduced by more than 35%, while the percentage of CO2 has increased by 40% in the industrial era. Of the two problems. I am concerned only the first. The second is of concern only to the solutions that want to adopt for its reduction.

However, the Earth has seen much worse from the point of view of climate, even when there was still oxygen and through

natural processes has reduced atmospheric toxic gases making it possible to plant and animal life. From these processes, which have been acquired by studying fossils and glaciers, we should learn how to prevent global warming because of man. I would like to take stock of the known systems that nature has invented to reduce the amount of CO2 present in the atmosphere, from the origins of Planet Earth.

We neglect the early atmosphere made mostly from light gases (hydrogen, methane, ammonia) and us refer to the next, which dates back to the origins of life, when the atmosphere was essentially water vapor, CO2, nitrogen oxides and did not show traces of oxygen. It was in the water and the CO2 that life originated, which also resulted in the current atmosphere, especially by replacing the CO2 with oxygen, leaving the right dosage for optimal living conditions, at least until the advent the industrial age. Then began the big issues mainly due to the combustion of fossil fuels on a large scale. Particularly in the last century, one could say that every year the planet has aged at least one hundred years compared to the previous rate of aging.

Not it is understood that the excess CO2, produced for industrial purposes, but should not be dispersed in the environment must be absorbed from the environment, not after a few hundred years, but immediately. The fumes also be cleaned from CO2 before being released into the atmosphere. What DCPTCG, you create these conditions, in the first place to contain the dispersions, based simply on the greater weight of CO2, compared to oxygen and nitrogen, and in the second place favoring the absorption by water, exploiting those processes chemo synthetic and natural photosynthetic, which led to the current weather conditions unlivable primordial. Today, with advances in technology, the modern gas-fired power plants, can be contained in temperatures below 80 OC. Cool it further, the

smoke stack (CRD) and in the greenhouses of the FSV, the air temperature will stabilize at 35-40 ° C and the water below, below 30 oC. Under these conditions, taking a cue from the geo-climatic events that have characterized the history of the planet, reproduce, in miniature, an artificial greenhouse effect confined to plants, mainly to consume the CO2, but also drawing from other environmental and energy benefits. They were the excess of greenhouse gases in the atmosphere to cause the warming of the planet and the impounding of CO2 by the oceans to cause the death of the ocean floor and the ice ages. In S.C.M.C.V. and in S.B.F.S.C.V. the abundance of water vapor and CO2 would cause the greenhouse effect, while in the water would be the sequestration of CO2 through photosynthesis, the precipitation of organic sludge and the increase in carbonate hardness. But extracting the excess sludge and ensuring a fair exchange of water could not be the death of the seabed. The cycle of absorption of CO2 could continue indefinitely without damage to the environment at the same time administering the carbonate alkalinity to the desired water from the oceans. In DCPTCG, the sludge would be transferred to the anaerobic digesters (DDCL) to produce biogas, which when oxidized to CO2 during combustion in thermal power plants, removed from the room before exiting the chimney, would return in the basins of water treatment plants covered, to react chemically with calcium ions and water or biologically, through photosynthesis, producing again carbonates and biomass and emitting into the atmosphere only a small percentage of CO2 that these processes can not absorb. In this way we have described a nearly closed and almost perfect. Atmospheric emissions from vents of the percentage of CO2 that escape will depend on the size and efficiency of the covered dock. If we consider that the production and consumption of biogas, total or partial, we would have already declined to issue a quota of fossil CO2, we could even close the negative balance, and compensate the CO2 emissions that can not be captured with the same efficiency (eg, those of means of transport). In addition, if we think that in the flue gas of a power plant to

natural gas CO2 concentrations is approximately 10%, as many as 300 times the normal concentration of the atmosphere, it is easy to understand that in the greenhouses above water catchments, we can easily arrive at concentrations higher than 30-40%, namely a thousand times higher than the normal atmospheric concentrations, as that oxygen and nitrogen, lighter, will come out from vents atmospheric. In a sense, in these plants, riprodurremmo what was normal on the planet millions of years ago, not only to consume the CO2, but taking advantage of features to improve the environment. These things are probably escaped scientists and researchers who would like to simply capture it and bury it, with high costs, high pressures, high dangers to 1000 meters deep, even without exploiting the corrosive characteristics against limestone to produce useful carbonates. Creating optimum environmental conditions and maximizing the contact surfaces, it will be time to work for us. It would be wrong to consider the basins of the plants as changes in habitat of the water body, in the meantime, because they would be in parallel to the same, and only a part of the water will pass, also, protection nets in incoming and outgoing prevent the passage of the fish fauna in and out, while the flora that will develop in the surface layer of the water will be retained in the basin. Will leave only the waters that circulate in the lower zone to the production of phytoplankton (that will be reinserted into the body of water), while the sludge will be extracted and sent to the digestion.

13) PHOTOSYNTHESIS IN WATER

The phytoplankton and aquatic plants, in contrast to terrestrial plants that use the free CO2 present in the air, they use more complex methods and full of carbon assimilation,

both withdrawing it from the air (such as terrestrial plants), and subtracting the acid carbonic acid H2CO3, is taking it away from carbonates such as CaCO3, both bicarbonate Ca (HCO3) 2. The chemical equation that summarizes the process is: 6 CO2 + 6 H2O + 2872144.8 (j / mole) C6H12O6) + 6 O2. The value 2872144.8 (j / mole) = 686 (Kcal / mole) is the energy resulting from solar radiation required to effect the reaction.

Photosynthesis, not only anticipated the presence of oxygen on earth, but they have been the source, extracting it from its CO2, through which he anticipated every form of life. Of course, to play the habitats that produces oxygen from the CO2 we have to bring in the least interested in the natural or artificial light (now with LED lamps can play any frequency and spectrum of light, consuming 1/25 of the old incandescent lamps) if we want to use this valuable contribution, which is indispensable both for purification to consume the nutrients present in the water (including CO2) and to produce biomass which will ensure fresh organic mud to anaerobic digesters that increases performance. To confirm that photosynthesis would also work in difficult environmental conditions, such as those that would occur in greenhouses, just remember that some primitive bacteria (cyanobacteria) created the first autotrophic organisms (ie, able to independently synthesize the organic nutrients from simple inorganic substances, such as CO2 and water, by photosynthesis), in the absence of oxygen and with much higher temperatures than the present ones. With the development of autotrophs, heterotrophs were able to continue their evolution, having available the autotrophic as nourishment. We do not know how this happened, but we know with certainty that had already happened about 2.4 billion years ago. In that period the earliest appearing and simple prokaryotic cells, that is devoid of a core delimited by a true membrane, and where the material dnatico is simply contained in the cytoplasm of the cell. These organisms were

the pioneers of blue-green algae. In the oceans the proliferation of autotrophic organisms led to a strong increase of free oxygen, which dall'idrosfera passed to the atmosphere, according to some estimates, by the end dell'Algonchiano (from 1.6 billion to 542 million years ago) the concentration of oxygen in the atmosphere must be between 1% and 10% of the current one. But, to refer also to more recent eras (60 to 40 million years ago), we can refer Eocene era, where it is believed that an intense warming has been caused by the explosion of methane clathrates from marine sediments. The gas released into the atmosphere produced a comparable greenhouse emission of billions of tons of carbon dioxide. I enclose an excerpt of an authoritative online article (http://halsoskydd.info/Scienza/2011/09/Qual-el-evento-Azolla.html): "L" Arctic Ocean was closed on all sides, Greenland, Europe, Asia and North America were all connected to the north and the body of water became stagnant as the current "Black Sea". Copious amounts of rain created a thin layer of fresh water on the surface. This layer of fresh water was quickly colonized by freshwater fern "Azolla". This species under optimum conditions (temperature, moisture, and nutrients) can double its biomass within 2-3 days to achieve excellent ability of nitrogen fixation (one ton per hectare per year) and carbon (six tons per hectare per year). The ferns death, accumulating on the seabed under conditions of anoxia (caused by a lack of water column mixing) actually seized the CO2 from the atmosphere and debris fossilize without being digested by the bacteria. In 800,000 years of growth and death of the ferns, the level of CO2 in the atmosphere fell from 3,500 ppm (parts per million) to just 650 ppm. The carbon dioxide sequestered by the process dell'azolla began to cool the planet. Prior to the event dell'azolla, the average temperature of surface waters in the Arctic Ocean was 13 degrees oC, later, became – 9 ° C ".

Therefore, universalizing the world system DCPTCG we can help to cool the planet through the ssorbimento allowed by the CO2 greenhouse calcarree photos and concise but also, limiting heat loss to the atmosphere.

Today the glaciers are starting to melt again. The event azolla, or similar aquatic plants and algae already is occurring in many parts of the planet, lake and coastal areas, particularly in China, where many lakes and coastal areas seem to grasslands. The proliferation dell'azolla can be explained by favorable conditions of the symbiotic fixation, which consists in reducing atmospheric molecular nitrogen into ammonia caused by those microorganisms that live in symbiosis with plant organisms, from which they receive energy and nutrients. These microorganisms are able to break the triple covalent bond elemental nitrogen (N2) thanks to the presence of the enzyme nitrogenase. They are symbiotic nitrogen-fixing bacteria of the genus Rhizobium and Actinomyces. Some species of cyanobacteria, such as Anabaena, fix nitrogen in symbiosis with the water fern Azolla pinnata.

14) PRIMARY PRODUCTIVITY

The organisms synthesizing photo (micro and macro algae, some bacteria and higher plants) and to a lesser extent those chemosynthetic (bacteria), have the ability to synthesize organic compounds with a high energy content (carbohydrates) respectively by light, water and CO2 or inorganic molecules. Overall, these organisms are defined primary producers and occupy the trophic level of the base. The total amount of organic matter (or organic carbon) produced through photosynthesis, per unit of area or volume, and per unit of

time is defined primary production. It can be expressed in mg of carbonio/dm3, carbonio/m3 mg or g carbonio/m2. The biomass produced by autotrophs unit of time, and therefore the energy fixed per unit of time, is called productivity. Thus the productivity is the speed of production. It is distinct from the gross productivity net productivity. The gross productivity is the total rate of photosynthesis, ie the total production of the organic substance in the time unit (part of which is immediately consumed for vital functions), then there is included in the gross product that part of the material used for the survival by the manufacturer (breathing process) The net productivity is that part of gross production that remains after consumption necessary for survival (breathing). According to the article http://w3.uniroma1.it/ecologia/energia “the efficiency in the laboratory of the photosynthetic productivity is about 35%, while in nature is only 1 .6%. Quantitatively, the reaction can be written as follows (Clarke 1948) and is called the productivity equation 1300 Kcal of light energy + 106 CO2 + 90 H2O + 16 + NO3 PO4 minerals +1 = 13 kcal of potential energy contained in 3258 grams of biomass (106 C, 180 H, 46 O, 16 N, 1 P, 815 grams of ashes) + 154 grams of O2 + 1287 Kcal of thermal energy (about 98.4% of the energy input). Is easily seen that almost all light energy input is given in the form of heat and not converted into biomass. The causes of this apparent inefficiency are related to problems of adaptation to the amount of light and ‘variable in time and energy allocation in both protection systems and in those of repairing the damage. “.

In light of the above, if you do not want to resort to genetic mutations in plants and animals, we must try to bridge the productivity gap between the ‘nature of the 1.6% and 35% of the laboratory. With the greenhouse production of many fruits and vegetables we are going towards the recovery of productivity but we have a long way to go in this area and I

believe to be a pioneer in preaching the “purifiers covered” for over two years. But in this publication go further, suggesting in greenhouses, warehouses limestone, biological ponds and crops above ground mechanized. All strictly indoor and overlapped. So, not only the primary productivity, but also the efficiency of environmental protection and energy production (clean) can be multiplied. The technology developed in the mechanical industry can be very helpful in increasing the productivity environmental, food and energy in the future will be closely linked, but today they are completely unrelated. Suffice it to say that agricultural production in the greenhouse requires a greater absorption of CO2 compared to the cultivation in the field (at least three times higher). This CO2 is returned to nature with the oxidation of organic matter produced when we consume the organic matter itself or burn in power stations. But in the latter case, we will produce energy through a DCPTCG, neutralizing the CO2 produced biologically, we will have closed permanently removing it from the process environment, thus contributing to the cooling of the planet.

The “Exxon Mobil Corporation”, the oil giant, has been working for some time with Synthetic Genomics Inc. (SGI), one of the leading companies in the field of biotechnology, to help produce biofuel from algae photo synthetic (http:/ / www.chimici.info / from-algae-fuel-of-the-future). Personally, I do not know how they will do and I hope they succeed. Standing with your feet on the ground and without experimentation, in a covered we can estimate the maximum production of 10 t / ha * year. But it is important, above all, the cleansing effect and the absorption of CO2. The water of the sea, lake, river, that will feed the biological ponds can get into these basins raised by pumps, but only to replenish the water consumed, as they are extracted sludge. This will be very little, compared to production surfaces, whereas the biological ponds, shallow, produce no waste of

energy biomass in purifying surface area and in the area below develop facultative bacteria that adapt to the environment both aerobic and anaerobic to that. The performance of these ponds enhance the state keeping active surface that reproduces the plant surface entry type or azolla and optional mixing layer with the incoming slurry after downloading the sludge produced in the oxidation tank (brad) and raised an equal amount of water upstairs. The large surfaces will also serve to assist in the cooling water and air. The amount of water to be extracted from the upper reservoir final (sbffcv) is determined by detection probes dissolved oxygen and two levels of operation that will keep unchanged the cloth reproduction of aquatic plants. The lower basin of water to be treated (brad) equipped with air-powered speaker and CO2 collected from the same aerial environment of the basin, will be powered by all the polluted water from outside and by the same process: the water overflow the hoppers input to DDCL, the liquid digestate of the same, irrigation drains of SMPCV The water from the ponds organic can not go out, except to infinity from the top floor, which, according to the type of plant, the feed water veils the greenhouse SCMCV, or will be discharged as purified water. The advantages of this solution would be immense:

a) exploitation of the overlapping surfaces to purify water without wasting energy and surfaces in the plant with a modest production of fresh biomass, useful for improving the quality anaerobic digestion of other substances less digestible.

b) purifying increased productivity and biomass using the physical laws of Dalton and Henry on the pressure and the solubility of gases in the aquatic environment covered.

c) exploitation of the vertical development to automatically

obtain a thickening of sludge older that are extracted.

15) COLD CARBONATION OF LIMESTONE ROCKS

By the researchers was compiled a ranking of the most common elements in rocks, regardless of the genesis of these: oxygen: 46.6%, silicon: 27.7%, aluminum 8.1%, iron 5.0%, calcium: 3.6% Sodium 2.8% Potassium 2.6% Magnesium 2.1%.

From the article "http://www.genitronsviluppo.com/2009/07/03/assorbire-co2" we learn that: many scientists funded by the U.S. Department of Energy, are seeking to develop a new generation of porous solid materials that can trap molecules of CO2. These solids are available in various shapes are primarily carbon derivatives that become real molecular sieves for CO2, as the Tinkertoy molecules that form huge networks able to capture and retain certain chemicals. I personally think that these solutions are not used because the CO2 needs to be neutralized, but is used to benefit the environment. I've never been in the world by the "greenhouses covered limestone mechanized vertical" (SCMCV), which, as anticipated are the central element of a DCPTCG In these greenhouses, new materials, do not need, because we could use that CO2 was not trapped but were combined with calcium, magnesium and silicon to produce bicarbonates in the water basins (braa) underlying the greenhouses, through water courses would transfer them to the sea.

The universal cycle of carbon, is based on the low solubility of calcium carbonate, which allows to realize the so-called “pump oceanica” which removes the CO2 from the atmosphere to deposit it in the form of carbonates in ocean sediments along with the carcasses of dead organisms of bone molluscs or other animal species, made, also of calcium carbonate, in order to return them to the Earth’s crust over millions of years. Today, we can no longer rely only on the slowness of natural processes: the movement of sediment subduction lead in the earth’s crust, where high temperatures and pressures occurring phenomena of metamorphism: the calcium carbonate is converted back to the formation of silicate rocks. We can not even bear the costs of the extraction of calcium from rocks that require a lot of heat energy and therefore CO2 production, resulting in the opposite effect. But apart from the fact, that future systems manufacturers football, like all plants that produce thermal energy and CO2, will have to be matched to a DCPTCG or at least one FSV, we must make better use of the limestone rocks, which are the most permeable to infiltration of CO2. But in order for the process to be sustainable we need to focus processes where we have a high concentration of CO2 in fresh water and heat, so that the CO2 will become more aggressive towards the limestone rocks. These conditions occur, where they are positioned thermal power plants and heating plants. Experimental data will allow to determine the amount of the masses to expose to the fumes, the size, etc.. depending on the composition, but only to myself enough to know that only exploiting the laws of Dalton and Henry and storage mechanized crushed rocks, in the pool, we can multiply the well-known phenomenon of karst of thousands of times, compared to the volumes occupied .

Since the publication “http://www.chimicamo.org/tutto-chimica/pietre-calcaree” reporting: “The stones come from calcareous sedimentary rocks, is of chemical origin is of organic origin. The sedimentation

equilibrium chemistry is linked in heterogeneous phase:

$Ca2 + + 2\ HCO3\text{-} \rightleftharpoons CaCO3\ (s) + H2O + CO2\ (g)$

As can be seen from the reaction, water running or still rich in calcium ions and hydrogen carbonate ions may deposit calcium carbonate as a precipitate if, for changed conditions of temperature and / or partial pressure of CO2 above, away part of the carbon dioxide in them Dissolved atmosphere. The reaction is reversible, and read from right to left, plays the chemical erosion, carbonated water, not too concentrated in calcium ions, called aggressive water, making the rocks to the limestone composition. This phenomenon is particularly evident in the stalactite and stalagmite formations, as determined by groundwater, percolating under pressure, when they come in contact with the atmosphere or with inner tubes, let evaporate H2O and CO2 are being depleted, resulting in precipitation of CaCO3 which takes the form of a drop. The compound that predominates in the chemical composition of the limestone rocks is therefore the calcium carbonate. In addition to calcium carbonate, in the process of sedimentation, also precipitate other carbonates especially those of magnesium and manganese and iron hydroxides which greatly affect the appearance and especially on color. The limestone rocks are not stable or chemical agents, or with respect to thermal agents. The calcium carbonate, in fact, you put in equilibrium at each temperature with calcium oxide and carbon dioxide:

$CaCO3\ (s) \rightleftharpoons CaO\ (s) + CO2\ (g)$

At low temperatures, the CO2 concentration in the air is enough to shift the balance from right to left, while at high temperatures the opposite occurs: CaCO3 dissociates to

increase the concentration of CO2 in the air until equilibrium value.

Acids, even weak, or diluted strong acids, decompose the calcium carbonate, according to the reaction:

CaCO3 + 2 HCl → CaCl2 + H2O + CO2

Or in ionic form:

CaCO3 + 2 H + → Ca2 + + H2O + CO2 “

This is the response to which we aspire in greenhouses limestone, which in abundance of rainwater otherwise we can write:

CaCO3 + CO2 + H2O ⇔ Ca2 + + 2 HCO3-;

In pietraia suspended in the moist environment of the greenhouse, in line very schematic, the elements that constitute the minerals of rocks ranging in solution in the form of ions. These ions can originate for different mechanisms: 1)-dissolution of salts, until reaching the solubility product of the salt itself; 2)-ion exchange between a cation and the ions H3O +; 3)-ion exchange between an anion and OH-ions. In addition to the three mechanisms mentioned above, the ion subtracted to rocks (positive) can undergo a complexation (formation of complex ions) or hydrolysis by reaction with water molecules. Both of these factors reduce its concentration. Imagine what happens at the molecular level

when a solid ionic, such as a salt, it dissolves. The ions leaving the solid and are dispersed in the solvent, until some dissolved ions meet with undissolved solute (salt form) and solidify on its surface. But in the greenhouse artificial rain will be enough continuous dragging the salts in the water of the basin, the conditions of saturation will not occur ever then the dissolution rate will always be higher than the speed of recrystallization. But later on we will also examine cases where we will bring the waters of the basin (braa) to the point of saturation and calcium.

Sedimentary rocks are composed of minerals such as sulfates and carbonates, alkali and alkaline earth metals, because these generally soluble in natural waters. Their dissolution rate is much higher than that of silicates, which obviously does not take into consideration, but in any case, will give their small contribution. An example of carbonation cold is given by the calcite (CaCO3), which often remains dissolved in supersaturated solution. The first natural waters dissolve the alkaline earth carbonates. Is reached when the concentration of Ca + + ions and CO3 – corresponding to saturation with regard to calcite, the consequent increase in the salinity of the water to proceed along the hydrogeological cycle is achieved by the solubilization of alkaline-earth metals and sulfates of alkali chlorides. The five categories are then divided as follows, taking the name from the main component of salt: 1) – bicarbonates in water, 2) – bicarbonates, chlorides in water, 3) – in chloride-bicarbonate waters; 4) – chloride-sulfate waters; 5) – chlorides in water. Na + and K + are grouped among alkali; Ca + + and Mg + + between the alkaline-earth metals; HCO3-and CO3 – between the anions of the one part, and the other Cl-and SO4 -. In this way the sum of the molar percentage (Na + + K +) closes to 100% with the molar percentage (Ca + + + Mg + +) and the molar percentage (HCO3-+ CO3 -) closes to 100 with the molar percentage (Cl-+ SO4 -). The acid carbonate, or calcium bicarbonate goes into solution

in water (solubility at 20 ° C, about 1 g / liter). It is in reality of an equilibrium reaction and the amount of hydrogen carbonate which may be dissolved in the water is greatly affected by the concentration of CO2 in the water itself.

16) PALEONTOLOGICAL KNOWLEDGE & MODERN INDUSTRIAL AUTOMATION AS A MEANS TO SOLVING THE ECOLOGICAL AND ENERGY CRISIS

This chapter is excerpted from the book of the undersigned "The closure of the anthropogenic carbon cycle" to highlight how you can get to the industrialization of environmental protection and energy, multiplying the production capacity.

Drawing on the geology and chemistry, we know that important phenomena associated with the rocks have already intervened in the history of planet Earth for the purpose of reducing CO2 from the atmosphere, and I quote the tectonic upheavals that led to the formation of the current continents, due to the transition between Rodinia and Pannotia (old continents) that occurred at the end dell'Algonchiano (third period of the archeozoica), extracted from the on-line publication "http://www.fmboschetto.it/didattica/Anno_della_Terra/Precambriano": "From the mid-ocean ridges would spill basaltic lava from the Earth's mantle, such as to cover most of the granite that formed the continental surface. The basalt, being a porous rock, was much more easily eroded granite and

therefore, for the same time, the amount of basalt removed from rivers was much greater than the corresponding granite. Once dissolved in water, the mineral components of the rocks absorbed a portion of the CO2 dissolved in the water itself, after binding to it, the minerals precipitated on the seafloor in the form of sediment. This phenomenon led to a shortage of CO2 in seawater, which was compensated for by the dissolution in water of a large amount of CO2 from the atmosphere, in practice the sea the absorbed as a real “sponge”. Following the crushing of the continent Rodinia, the consumption of CO2 through weathering of basalt would have increased to a level that would exceed the amount emitted by volcanic eruptions at the same time, thus causing a net reduction of the greenhouse effect on the planet, and then , a general cooling of temperatures, sufficient, according to the calculations, in order to freeze the entire planet. “

Based on this amazing experience from prehistory, and modern technology, suppose we transform the greenhouses covered basins of water treatment plants (used for cooling flue gas with CO2 capture and cultivation of plankton) in a mechanized warehouse (SCMCV) full wire mesh baskets in which to suspend the tracks of steel sections (anchored to the supporting beams) using carts with wheels shaped bushings with self-lubricating material (bronze, polyethylene) or sealed ball bearings lubricated for life. Suppose that the racks have a closed base, perforated metal sheet coated with non-woven fabric and a hexagonal or circular, so that the air or steam can circulate between them side by side also on four sides, and superimposing (as occurs in industries food where they age the hams and cheeses). Filling of limestone boulders these baskets, we increase of hundreds or thousands of times the surface area of □□contact between the rock and the water, which we trace from the baskets themselves. The percentage of soluble CO2 in the water increases by dozens of times and the one present in the air can even exceed 2500 times the

atmospheric concentration relying on rapprto between the concentration in the flue gas and air (10 / 0.039) in the absence of air cooling in greenhouses limestone. It is easily understood that even without heating the rocks to 1000 degrees the corrosive effect due to the action of these factors can simultaneously produce calcium requirements necessary to alkalize the water and consume CO2. Over all, we can also control the speed of the process by entering more or less clean air environment and subtracting more or less air for the production of biomass in greenhouses adjacent terrestrial and aquatic. The steam generated, lighter than air and CO2 rises upwards from the top vents exiting from the greenhouse. CO2, along with water penetrating into micro cracks in the rocks would produce bicarbonate Ca (HCO3) 2 and carbonate CaCO3. Being impure rocks, dripping dirty water of clay, gravel, calcium, silicon and various minerals are harvested in a double removable bottom of the basket (CPCC) covered by a panel of non-woven fabric, which passes only alkaline water . Even the exterior bottom of the basket will be covered with nonwoven fabric. This way you do not pollute the basin (braa) and the limestone rocks, in the sections of regeneration, can easily be integrated from the top of the basket removing, cleaning and replacing the filter removable bottom. The water falling on the roof in the slope (braa) is conveyed laterally through a collection channel stones (crp), protected by a small grid. In this way even the few stones falling from the top can be consumed without producing unwanted sludge in the basin (braa). The channel (crp) is covered by the rain that falls from the top to divert the flow of rain on the floor and forcing the impurities to settle in the channel, which is cleaned by a hanger (bam) motorized, specially equipped with a rubber shoe. From the channel (crp) is taken alkaline water (aa) that feeds (brad). The bulk of the water overflow to the (braa). In this, being raised to the removal of water (vas) positioned in the center, it causes a circulation of underground waters from the sides towards the center. With this system, only spending the energy for lifting water solve

many problems simultaneously:

1) we cool the fumes that inject into the atmosphere of greenhouse limestone (scmcv) (also the heat is pollution and contributes to global warming) and subtract CO2 to the atmosphere;

2) alcalinizziamo waters in the basin (braa) without spending energy without emitting CO2 in the atmosphere to extract calcium oxide;

3) realize an oxidation process due to the fall and movement of water immediately neutralizing the CO2 emitted from the process. (Today, purifiers consume a greater amount of energy, CO2 is emitted into the atmosphere and the product purified water becomes acidic, releasing more CO2 into the atmosphere when they mix with the waters of the sea and lakes.)

4) avoid wasting calcareous sediments on the seabed. Indeed, the precipitation of carbonates in the oceans, in the absence of current slopes, are not recoverable for the purposes of the biological process. They are intended solely for long fossilization.

This solution would not have been able to offer it in the past if I had not worked on automation and conveyor technology. But the insiders environment and energy are not interested in this revolutionary proposal. It is not known if the year included.

Realizing the greenhouse (scmcv) multiple files and multiple floors of calcareous material in hanging baskets and wheeled

equipping the heads of the greenhouse of a system of stacker elevation of baskets (MSCB), we can insert the bogies on the rails of the warehouses and take them out periodically (eg . every three months) in order to transfer them from the opposite side in a line parallel to the dock, where the sediments are discharged on a conveyor truck carrying the sludge in loading hoppers for vehicles. The loading points are added boulders worn and replace the filter covering the double bottom without emptying the basket. Sized plant as an example we will have about 272 baskets for each row (300 m long). Each basket will be suspended to two trolleys equipped with a spacer which positions them in step of 1.100 mm, without touching the racks, while the equipment that inserts them in the row and makes them advance one step, being equipped with a system of thrust hydraulic system. Having been occupied for years of these systems before moving on to the environmental sector, I can assure you that the synergies between the mechanical chemistry and biology, can completely change the treatment capacity of the environment sector, while not taking advantage of the entire potential of automation used in ‘ industry, for obvious cost problems. I do not pretend to exhaust the subject, to mention only the solutions that will be refined during project development. The problem of corrosion of the runways of suspension of the baskets in the warehouse calcareous, permanently subject to acid rain, for example, would be dammed carterizzandole panels with ponds in pvc closed in the lower area by rubber lips yielding to the passage of the shanks of suspension of the baskets . For the absorption of moisture, the interior of the casing would be filled with balls of expanded polisterelo moving to the passage of the transport trolleys, without departing from the package. I state that with varying degrees of automation we can move racks and racks suspended carriages motorized or manual from one lane to another and from one floor to another horizontally or vertically moving the track section to which the basket is suspended or the suspension bar. Then, the system is also valid to move the racks that will be equipped

for lavorazone soil and for cutting, chopping and suction of biomass. The buildings emissions, which do not exist, can not be conceived without these handling systems. With energy crops and crop processing operations are very simple, therefore, the automation can be pushed to the maximum. We can also use the pneumatic transport of the chopped. If one day, greenhouses, should also be used for food production, the crop could be moved and transported, through specially equipped motorized racks.

In buildings greenhouse assumed height 70 m, we will have a central warehouse limestone 18 m wide, 300 m long, divided into twenty-four floors and sixteen rows of 272 baskets, flanked laterally by two biological ponds (without equipment) and two production greenhouses 12 m wide , divided into twelve floors, with four lanes of tillage 3 m wide. In head to the building on the first floor, upstream and downstream, we will have three elevators equipped with binary translation, two side 12 m wide with four tracks for motorized carts and a central one with 16 tracks for forklift manuals baskets limestone. The movement and the translation of trolleys in the preparation of the suspension and baskets (changes of equipment on board, load limestone boulders) would be on the ground floor, using individual elevators, individual translators and individual tracks, which would cross the elevator to the first floor to continue the route. Having realized the plant perfectly symmetrical, the elevator will be loaded with central n.8 trolleys baskets calcareous prepared from the right sector and 8 from the left. Not being motorized these carts, in the area of □□cleaning, maintenance and filling of the baskets, placed on the ground floor, can be driven individually by a parallel ring monorail with a command group which hook hanging pushers with a manual operation of the operators. The trucks full of rocks to be stored will be released from the ring thrust monorail always in the same location as the final stretch of rail that will allow a build

up of about twenty baskets. From this one location hydraulic pusher will make them automatically advances one position. When the entire line of accumulation will be full and the last position of accumulation will remain occupied, the movement of the conveyor monorail will be interdicted and baskets can be moved only manually, push. When you will have to proceed to the storage of the baskets, these will be driven individually by another ring in the motorized lifting position and once raised, made to advance by a pusher in a group of traveling with 8 workstations that advances one position until full load. When this occurred, the elevator goes up to the programmed working storing the baskets. More or less, the same operations take place also from the opposite side for the discharge of the baskets and of the suspension of processing. We do not enter into the merits of the level of automation of the transport industry have been widely tested, but never used in the environment. However, in the case of agricultural production will not be necessary or convenient electrify all paths, in large part, subject to rains and corrosive agents, should only electrify the sections of sorting trolleys for baskets and racks, external to the FSV through exchanges, descenders / elevators and hoists. Agree motorized carts transport and agricultural equipment with DC motors, powered by batteries interchangeable. The battery charging stations will be located on the ground terranean. Also the pneumatic transport of fine has been widely tested in industry, while for the suction of the chopped by the hanger equipped in movement can take inspiration from the system used for the suction of welding fumes in the work stations in motion. These provide for a suction manifold equipped with a slit covered by rubber lips that open to the passage of the metal terminal shaped suction pipe, of which, will be equipped with the equipment mounted on the hanger for cutting and chopping of the crop intake. Obviously, as is nell’industrie zones automatic handling will be cordoned off and protected with mesh panels fotocellullule etcetera. With these brief advances common techniques of industrial transport sector almost alien

to cleansing and even more in the energy sector, I just want to say that there are solutions that have never been taken into account that could change radically and for the better, and the protection of ‘ environment, and energy production. I do not speak from hearsay, having occupied the details of these things, more than a quarter of a century ago. But in recent years, on several occasions and designs I happened to use mechanical hydraulic or pneumatic learned in the industry. A plant engineer even after fifty years of activity has always something to learn from the ski that meets and always something to offer to improve them, if he did not work with my eyes closed. The simple opening of the world’s environmental industrial automation would already be a great novelty, although relative. The firsts are the chimneys CRD, strainers covered digesters linear, ponds biological optional subsequent vertical greenhouses production, composting bagged silage biomass production, the coupling of energy production with purification, recovery heat, sustainable recovery and profit for the CO2, the large flow of air and water treatable with depurcogeproduction global thermalcovered. If today I propose as the inventor of the environment and not as an inventor because the world of industrial production does not need the undersigned, as he did not need in 1988, when I decided to go to work for the environment. E ‘was the conscience to suggest virtual orders on which work as a pensioner.

Create the covered lagoons bringing you the rocks that will take time to corrode the right (not too fast, not too slow), combining a mechanical system of storage and handling of the rocks will be the best solution in the fight against global warming from the point of view statement. But we can be put in the baskets also other calcareous materials subject to erosion. Think of inert demolition cement, suitably separated from the polluting substances contained in the plaster. These are composed of 64% calcium oxide, 21% silicon oxide, 6.5% aluminum oxide, 4.5% iron oxide, 1.5% magnesium oxide, 1.6%

sulfate, 1% other materials, including especially water. Take, for limestone mixed extractions to be performed directly from the seabed, before they are compacted and amalgamated by the hydrostatic pressure and the millennia. Without going to disturb major scientific journals, I take a small excerpt from Wikipedia under “limestone”: “The formation of organogenic limestone comes from the fact that many human beings are endowed with a shell or skeleton. After the death of these bodies, the remains after a more or less long range to the bottom, deponendosi on the seabed. After the decomposition of the soft parts, the parts forming mineralized sediments which cover areas often of considerable extent. For example, The “sludge to globigerina” now account for 37.4% of the bottom of the sea, which corresponds to 25.2% of the Earth’s surface. ” The “globigerina” is a soft stone Calcarea which tends to harden with time and exposure to air. With modern technology it would be quite simple pull it out with the help of the hydrostatic pressure. These minerals make it possible to extract the calcium without producing excessive amounts of CO2. However, all the activities that produce CO2 (power plants, furnaces producing football, incinerators, steel mills) should be carried out near a sewage treatment plant or a building covered vertical greenhouse, which allows the recovery that should start from the smokestacks of these facilities, as described in ‘appropriate section. These solutions from the management point of view may be improved only with the experimentation.

It will be much more sustainable recycle CO2 and imprison him in the carbonates of the basin covered (braa) to resort to the “carbon capture and sequestraction” mentioned above. And ‘much more sustainable remove calcium and magnesium from the rocks, cold, hot to remove industrially. I know that researchers have tried and are trying to do with poor results. But it is evidently that have neglected this solution which does not need testing. The synergy between mechanical, plumbing,

energy, air ducts solve every problem. Certainly, some of the calcium oxide should produce industrially, but the bulk will be removed by the method described, saving millions of the world’s CO2 emissions each year and delivering free, bicarbonates to the oceans, which they need, especially in surface waters, which can be provided, particularly, by the rainwater and river that we will pass through the buildings synergistic vertical FSV.

The calcium oxide, which is used in dewatering and sludge stabilization, but more importantly, in the building, is derived from limestone, heating it to almost 1000 oC, consuming about 760 kcal / kg and 0.5 kg of producing other CO2. Considering that the rock is not pure and the molar ratio between the weights CaCO3 (100), CaO (56) and CO2 (44), to have a kg of Cao produce about 2 kg of CO2. Equally, it would be worthwhile to make this exchange, because the calcium oxide used to fight ocean acidification with a yield exponential going to fight an irreversible process that develops with logarithmic laws in base ten. No investments would be more true. This performance certainly can not supply the construction industry. Therefore, if we want to continue to produce calcium oxide for the construction industry, we must take advantage of the ability of corrosive fumes of heating systems and furnaces of the same producers of calcium oxide, passing them in the warehouses of limestone and siliceous of FSV. Will reduce the environmental and economic costs of the production of Cao, eliminating the smoke and alkalinizing the waters. Not be said that the works that propose cost too much. What it cost too are the current sewage treatment plants and energy systems that do not protect the environment and have no hope of being able to do so, unless they are modified and adapted to be industrialized in energy production processes in protecting the environment.

17) C02 EMISSIONS AS A RESOURCE

The existing thermal power plants produce thousands of MWh, not cool waters, not sufficiently purify the fumes, do not recover the heat and carrying even an ounce of carbonate in water. Who designed the thermal power plants of 200 years now has proven not Know yourself nothing of the natural systems on the environment. All other scientists, climatologists, biologists, environmentalists, for a long time let’s do it. Today, woke up and want the new energies. But nature always works in the same way. We must indulge his defense system by creating small power plants termolelettriche complemented by large digesters, gas recovery systems, greenhouses limestone and large flows of water. Not the fault of coal or fuel oil, are power plants that have been wrong too great to be realized without the infrastructure that recover the heat to produce new energy and compost; recovering the smoke to purify them and send carbonates of the seas. These conditions are not optional but primary because they must return to earth minerals and carbonates of the seas, The new energy that they can not do, can not do it even when it becomes a hydrogen propellant. The new global energy system enviromental protective industrial (GESEPI) distributed along the rivers lakes and seas ecosystems back into balance by producing energy and can also desalinate the sea water.

We can not accept skepticism on this system by those who designed the current energy systems and water treatment plants and also by those who have been silent. This system, still did not find lenders for the most basic experiments, probably because nobody wants to admit blunders in environmental protection. I’m the first to say that the kinetic rate of

direct transfer of calcium from the limestone water is very low. To this have been resized plants at the expense of the greenhouses. But they were made ancher other important considerations.

The ocean will require less calcium pump if the oceans retain at least the alkalinity present. We have the resources to prevent ocean acidification, not fight it. We must learn to manage these resources. This concept is very well expressed by Henderson and Hasselbach equation that takes into account the relationship between the amount of bicarbonate ions (salts derived from carbonates) and carbonic acid in the water: pH = Ka + log [HCO3 ¯] / [H2CO3] where the constant Ka of carbonic acid is 4.3 • 10-7 mol / L is 6.37. But as I said, if we are wise, in addition to thermal power stations, will be opportune to carry out the manufacturing of lime, incinerators and plants producing smoke and CO2 combined with a treatment plant covered with greenhouse warehouse, and biological ponds vertical (SCMCV + + SBFSCV SMPCV), as if it were a thermal power plant, to recover for environmental CO2, and purify water involved in the process or other water to be treated. Case by case basis, will be sought for potential digestion and the production of extra energy. We can not accept skepticism on this system by those who designed the current energy systems and water treatment plants and also by those who have been silent. This system, still did not find lenders for the most basic experiments, probably because nobody wants to admit blunders in environmental protection. I’m the first to say that the kinetic rate of direct transfer of calcium from the limestone water is very low. To this have been resized plants at the expense of the greenhouses. But they were made ancher other important considerations.

To remain in the phenomena of dissolutions and mergers between the rocks and the water temperature and ambient pressure

possible and in order to take advantage of impiantisticamente heat and CO2 from power plants before releasing them into the environment, I'm mentioning the following publication, which carry some data mixed with personal considerations: http://areeweb.polito.it/didattica/chimica. In rainwater, the percentage of CO2 is considerably higher than in the atmosphere. This fact is of considerable importance in respect of the phenomena which can give rise waters flowing through rocks. In particular, carbonic acid H2CO3, exerts a slow action solubilizzatrice of certain minerals such as carbonates of calcium and magnesium, practically insoluble in pure water. The hydrogen carbonate ion (HCO3-) is produced by the action of free carbon dioxide on the limestone rocks. An example is the reaction of dissolution of calcium carbonate (already seen): CaCO3 + CO2 + H2O ↔ Ca2 + + 2 HCO3-; for dolomite, the reaction is very similar: CaMg (CO3) 2 + 2CO2 + 2H2O ↔ Ca2 + + Mg2 + + 4HCO3 -.

Through these reactions, the oceans are to fill in the changes in concentration of carbon dioxide in the atmosphere, being reversible. For hundreds of millions of years this process has produced huge amounts of rocks made of carbonates that have gone on to settle on the seabed. The meteoric waters hold in solution the gaseous constituents of the atmosphere, which are virtually saturated. The total quantity of dissolved gas varies with the temperature. At room temperature, it corresponds to a total of about 20 cm3 per liter of water. Due to the different solubility of the percentage composition of dissolved gases does not match that of air. The CO2 occupies a space much higher than it deserves based on its small percentage atmospheric (0.039%).

In the basins covered, where the absence of wind allows the stratification of the gas, oxygen and nitrogen more easily go back to the atmosphere compared to CO2, the latter can come to

occupy almost the entire space to increase the corrosive power of the limestone rocks. The water crossing a plant depurcogenerazione (DCPTCG) must have, in addition to the function of cooling turbines and condensers, even and especially the function of carrying the form of carbonates the CO2 out of the plant (not perused the atmosphere) . Would perform this function on a path parallel to the natural habitat, which is downstream of ricongiungerebbero, diluting with other water salts carbonates acquired, and helping to bring greater alkalinity to the oceans, which they need it. Do not forget that we are talking mainly of calcium carbonate and magnesium carbonate hardness that increase the total. The carbonate hardness should be increased to counter even the dissolution of salts of chlorine into coastal aquifers, which contribute in no small degree, to the processes of desertification. This also should make us reflect on how far removed from our needs power plants and environmental protection current. Fumes, heat, CO2, calcium, nutrients, waste, plants GESEPI could be exploited as the precious resources, however, are now disaster even when they are retrieved with so much publicity on environmental protection through waste-treatment plants that do not close properly and the carbon cycle and water. From Kyoto to Cancun to Durban and Doha no one noticed. The following table shows the values of the solubility of nitrogen, oxygen and CO2, in Ncm3 in rainwater at different temperatures and atmospheric pressure.

TEMP. OC N2 + O2 CO2 GAS DIFFERENT AMOUNT

0 10.19 18.99 0.57 29.75

10 7.87 14.97 0.41 23.25

20 6.36 12.32 0.32 19.00

30 5.26 10.38 0.25 15.89

WITH SMOKE IN GREENHOUSE

30 2.63 5.19 8.07 15.89

Henry’s Law states: A gas which exerts a pressure on the surface of a liquid, will enter into solution in the liquid until it has reached the same pressure that exerts above it. The law of partial pressures of Dalton states that the total pressure exerted by an ideal mixture of ideal gases is equal to the sum of the partial pressures exerted by the gas that would be if they were present only in an equal volume. The laws of Henry Dalton and only partially explain the increase of ocean acidification in the industrial era that compared to an increase of CO2 from 280 ppm to 390, has lowered the PH of about 0:11 drive that, it is a logarithmic scale, corresponds to an increase of ions (+) of approximately 30%. This increase has exceeded all mathematical models because the sea water, which is rich in salts, should behave more like a buffer solution, minimizing the variation of PH. But in the intervening many chemical and biological processes that act together in harmony, especially in the presence of pollutants, not neutralized at the source. We can not expect to protect the environment while continuing to ignore the power of plant symbiosis, achievable by man. The example of the fumes emitted into the atmosphere, the hot water discharged from thermal plants and acidic water discharged from industrial plants, including treatment plants, are the most obvious examples. Putting together different systems and building of plant sections catalyst, as is done in chemical and biological

processes that work, we can produce clean energy and environmental protection together.

Entering the fumes in the greenhouse, which initially would have, say, 10% by weight of CO2, gradually, from vents, placed at the top, come out, according to a descending order lighter gases. From the top, we will have in: N2, CO, O2, NO, NO2, SO2, SO3, CO2. The latter, being the heaviest, while decreasing, the solubility in water due to the temperature increase, as seen from the table, the effect of the increased proportion of the emissions into the atmosphere, would greatly increase its specific pressure on ‘water. If, for example, halves the content of air and nitrogen, also halves the space occupied in the water for the benefit of CO2 replaces them. Consequently also increases the capacity of calcareous rocks dissolutive by the CO2, more or less, in the same proportion, both for the direct contact of atmospheric CO2, both because it will raise a part of the waters and made of water veils descendants to increase the contact CO2 between water and rocks. If we consider that, in the greenhouse putting rock fragments stacked, we will have increased, also the contact surface of thousands of times, compared to the normal contact that occurs in caves, the operation should be extremely convenient for environmental purposes, and also cheap. The table is assumed to be an average water temperature of about 30 OC. While confirming the same amount of gas in the water at atmospheric pressure (15,89 Ncm3), over 50% can be constituted by CO2 (8.07 Ncm3). This means that we will need to thirty times lower amount of water to dissolve the CO2 content in the flue gas in water (8.07 / 0.25), increasing the capacity of thirty-two times corrosive water against rocks, that is, the ability to subtract ions of calcium and magnesium from the rocks to neutralize the CO2, without consuming thermal and electrical energy, with the exception of that required to achieve the lifting of water for artificial rains. If we consider that the water already in circles and thermal power

plants nearby (otherwise the plant would not have been able to achieve), we only need to increase the structural works to transform a thermal power plant that pollutes in a cogeneration plant depur-global (GESEPI) that protects the environment, produces energy, and creates a lot of employment opportunities (for infrastructure to create civil and electromechanical, for biomass and rocks carry you and all activities induced).

By way of example: a thermoelectric power plant to methane by 320 MWh produces 74,000 Kg / h of CO2. In the example above the water in the basin covered could absorb about 16 g / L of CO2 (8.07 cm3 / L * 1.98 g/cm3). The water flow (indicative) request to the basin to contain the CO2, at least until it is located in the basin covered is approximately 4,625,000 L / h (74,000 * 1000/16) = 1.285 m3 / s (4.625/3600) . Whereas only the cooler waters of the central calculating shown below, they are almost ten times higher (40,432,236 L / h = 11.2 m3 / s), we have a good chance of dissolving the CO2 in the indoor environment the greenhouse. But if we want this water permanently absorb a portion of the dissolved CO2 must increase the alkalinity also making them absorb calcium oxide. Not wanting to exceed the value of the receiving water body alkaline (which in the case was the sea is pH 8.2) suppose to give an average of 400 mg / L of calcium. Whereas we have 74,093 kg / h, CO2 takes about 94 098 kg / h of calcium oxide (74,093 * 56/44) that require approximately 240,000,000 L / h of water (94,098 * 106/400). This amount of water can be overwhelming just because the current energy and environmental systems, have been designed in an incomplete manner, without, purifying smoke, alkalize the water, recover the heat released into the environment. Indeed, in addition to 40,432,236 L / h of hot water discharged, in our case, about 45 oC, we also have 810 538 kg / h of flue gas to about 77 oC, which does not emit into the atmosphere wanting them to recover also the CO2, admitting that the other components and toxic pollutants were

efficiently killed in the CTE, which require nearly equal quantities of water, for cooling only. In fact, the heat subtracted from the fumes, wanting them down to about 50 oC is equal to 40,526,900 kJ / h (810,538 * 50). This heat would be transferred to the water in part, through a heat exchanger located at the outlet of the chimney of recovery and additional purification of fumes (CRD), described in part, and in part absorbed by the mixing of the fumes, which would serve also to lower the concentration of CO2 at an acceptable value for greenhouse cultivation. But even the air mixing must be cooled by water to be able to transfer to the greenhouses of cultivation. In addition, the hot water coming out of the heat exchangers of the DDCL CRD and will be used again, warm enough for winter heating and post heating summer, returning in common basin SCMCV after dissipated, usefully, most of the heat. In each case can be calculated various water needs to absorb CO2 through alkalinization of the water, cooling the smoke and the same waters, depending on the actual operating conditions. But, in principle, the conditioning factor is especially the absorption of CO2. This is a minimum part of the ponds SBFSCV, while the production greenhouses SMPCV can not guarantee a constant absorption over time, existing periods in which the absorption is reset (planting, harvesting, tillage). Tap water to ensure the constancy of this absorption, which is also the one with the best environmental effect, allowing the transport of carbonates towards the basins aquatic and marine. And ‘quite realistic requirements of 240,000,000 L / h of water for the proper management of a facility depurcogeproduction 320 MWh. Equally realistic is the consideration that will be very few plants of this size being DCPTCG few locations that have access to these courses. By choosing to resize this average size of existing power plants I wanted to show that it was too simple, in the past, leave it in half, without recovering the heat in water, smoke and CO2, and alkalize the water without crossing the central. If they had, even with other systems, the size would not be the current ones. But, as we shall see, the system used

to cool down, recover and produce energy resources is modular and it takes about 0.2 hectares per MWh produced with height of the greenhouses of about 70 m divided into 13 floors, one of which is for services, the plan ground. So, we could say that by maintaining these characteristics, a small central mah existing 16 gas powered or diesel should add an adjacent area of approximately 3.2 hectares. On this we can not do discounts. We can make some discount on the flow of the waters that run through the system, creating a partial renewal of the same on the understanding that those are circulating at least 750,000 L / h (240,000,000 / 320), at least to ensure the cooling of the flue gas. It will mean that the waters that leave the plant, instead of carrying the 400 mg / l of calcium hypothesized, it will deliver more approaching more to the point of saturation. The higher pH reached by water, will always be diluted downstream of the plant, along with other tributaries of the river. You can not address all the problems at this stage but only make arguments plant that have never been made. If we are forced to over dose due to lack of water flow needed is better that precipitation of carbonates occurs in the basins of DCPTCG rather than in the seabed and lake. At least football will find him lost in the sludge and from these in the compost produced by the plant, closing and shortening also, usefully, the carbon cycle.

From this summary sizing we can get an idea of the immense amount of water to be involved, the immense possibilities neglected plant, up to now, and the immense environmental potential offered by the combination of water bodies with power plants and heating plants, in general. Until now we had a water policy opposite to that required environment. We have completely overlooked these great works without retrieving resources, sped up the flow of water without giving them time to cool down, consume nutrients and absorb the carbonates. Likewise, we did it with the fumes to the atmosphere. We were in a hurry to build the consumer society. Environmental

problems there were only lose time. Today, at least the more developed countries are saturated with the consumption of cars and appliances, it is time that we realized that the industrial automation can also be used to increase the protective capacity of the environment. The need to consume and recycle carbon, also needs these technologies. The bigger the hydraulic works, the greater the environmental protection requirements of technology. But these works will first have to accommodate the territory. The feed water intake structures in parallel to the main flow of the DCPTCG with remarkable storage capacity and recycling, that reinseriranno downstream, only when they have the characteristics of sewage and alkalinization provided for in the meantime the main watercourse will accommodate flood flow rates, with fewer dangers for the people, infrastructure, crops.

18) DCPTCG AS A SOLUTION TO DROUGHT AND DESERTIFICATION

We started talking about the smoke and the previous chapter concluded by speaking of hydraulic works. When we speak of global facilities is difficult to keep straight the helm of the discussion. Everything is connected. I take this opportunity to also talk of drought. The summer we just had, which was one of the driest in living memory, it should be enough to understand the need of the works of which I speak. Here below is an excerpt of an article that summarizes the guidelines of our scientists to address this problem (http://www.corriere.it/scienze_e_tecnologie/12_agosto_24/siccita-sistemi-lotta):

“Disastrous, the budget of summer 2012 dry.” An Italy doubled by the lack of rain that now has to deal with a third of the national harvest lost and more than a billion Euros of damage. Figures unsustainable where drought and heat wave have “burned” 50% of the crops of soybeans, 30% corn and 20% of the tomatoes, forcing early to buy these food items out of the domestic market. In Italy, to propose a definitive solution to the ‘National Institute of scenery and Experimental Geophysics (OGS) of Trieste, in recent years with the help of the European community, is experiencing success with a system of “charging” water, restoring the deep aquifers and planning time for the reserves of ‘water. A system, to store water for the difficult times, which dates back to the dawn of the first great civilizations and now rediscovered in the age of technology. Leading profit with the first experiments the research team of Daniel Nieto’ Ogs of Trieste, busy studying a method to fill the empty aquifers. Trying storage systems in natural reservoirs and facing the formation of the so-called “salt wedge”, ie the advancement of the salt water inland. Phenomenon dangerous As the drought, which makes sterile fields, preventing their cultivation. Taking place two large field studies conducted in the last three years that have already produced encouraging results.

SALT WEDGE – The first experiment, explains Lieto, was done in Copparo, in the province of Ferrara, where we found that, since 1975, the salt wedge has penetrated the hinterland of 25 km. The second, which touches more closely the problem of drought, took place in Friuli Venezia Giulia and the foothills where the lack of rain has decreased the influx of fresh water of the mountains. The basin authority has estimated that, in Friuli, every year there is a loss of 75 million cubic meters of water for little rain, excessive overbuilding and over-exploitation of land. As a solution to avoid extreme situations, says Nieto, it is therefore necessary to think about preventive strategies based on the accumulation of water

resources and soil characteristics. (As we shall see in chap. 30 with DCPTCG we can fight even the salt wedge)

SOLUTIONS – Refill water can not always be in a state of disaster and to do that there are many solutions. Accumulation in the groundwater, dams, wells, water systems up to empty wells. Or you can take advantage of the catch basins, tanks, industrial waste water. The strategy of reserves, in fact, depends on the area and the availability of water in the territory, exploiting also to that which remains unused. For example, one of the consortia and winter, instead of getting lost in the sea, could be channeled into paddy fields and poplar trees to be collected and reused. These charging systems are essential for streamlined management of water resources and for years have been successfully applied in different parts of the world. “It takes years of study,” concludes Nieto, “to identify the right charging mode ‘.”

With all due respect to our scientists and the solutions proposed, should, add to their solutions, quite obvious, even new solutions, less static, involving dynamically accumulations of water needed to meet emergencies.

There are many reasons to slow the flow of water, especially surface towards the sea and all shared, but beyond those for which it stands myself. The waters are the most powerful means of environmental protection. The slowdown should not create other problems, such as flooding, floods, with no way of escape for water, which can occur with all reservoirs full. We must realize, above all, a lot of artificial works in parallel with the natural flow, so that these waters can be used in industry, agriculture, energy production and also have the time to clean up the environment and absorb carbonates, as they are called to do in DCPTCG. The water stored statically

in the basins, these things can not do it. It would be a shame to have the resources while they could still get rich in carbonates to offset ocean acidification advancing. That can not happen in the natural oasis, where it is impossible to control the processes. Better to realize artificial works under cover, preferably vertically, reclaimed from the natural flow, to absorb light and CO2 from the environment and increase the contact surfaces and perform productive functions and cleansing. The waters that absorb CO2 in the environment covered, due to the single most specific pressure (read Dalton and Henry) release it immediately before leaving the atmosphere if the environment is not covered has been done to secure a stable especially through the alkalinization and photosynthesis. More water will pass through the ski depurcogeproduction (which through ponds vertical, would also be of incredible water reserves), the greater the environmental remediation global, especially to counter the "salt wedge" due mainly to acidification of coastal and marine waters of ' environment. In C.T.E. a part of these waters are already involved for cooling turbine and steam condensers. These, being hot, the would use to heat large anaerobic digesters wet, it coinvolgeremmo other to complete the cooling water and exhaust gas of the same, to neutralize the CO2, humidified biomass that feed the digesters that produce biogas that will feed the same central or integrate them. Restituiremmo the waters of the rivers and oceans in better condition than when we have taken from the biological point of view, especially, alkali, to counteract ocean acidification. There will be one problem to solve: that of finding material to digest in order to satisfy the immense digestive capacity that we would have. The heat that we waste in heating systems in the world is enough to digest the biomass necessary for world energy production. If we find a way to produce biomass energy enough, we will not need oil or even energy, so-called clean. A part of this biomass will produce it on the spot alongside the SBFSCV greenhouses covered vertical SMPCV mechanized production, which would help to also consume CO2

from the producer to the consumer, in a process that can be fully automated, from sowing to harvest, silage, digestion, gasification, composting. Everything we produce, in any case will increase, in the form of clean energy, the current energy production, however, will be, too it, the smoke cleared from the circulation in greenhouses (SCMCV + + SBFSCV SMPCV). Today, with anthropogenic emissions of CO2 and heat untapped, overburden the circuit thermo alino terrestrial and public debt. Even from the economic point of view we can not afford the waste environmental and energy current. We have purification systems, which degenerate the sewage in the sewers and try to recover in plants: the water should self purified in large part to the same path sewer instead is degenerate hydrogen sulphide (see purification in homes and sewers the undersigned on www.Lexambiente.it.) We can not afford the low efficiency of energy production, which can not make more if you do not recover the heat and use it to produce new energy. We can not afford the current urban treatment plants that pollute the air absorb immense amounts of energy, mostly due to the degeneration sewer system. We can not afford the costs we pay to deal with environmental disasters caused by pollution and water pollution overlooked by current purification systems (groundwater and surface water pollution, floods, typhoons, global warming). We can not afford health care costs for respiratory diseases and cancers due to urban pollution. We can not afford the consumption of water, nor the pollution that involves agriculture. The activities of fruit and vegetables, which are the most polluting the aquifers could be moved out of the ground (CTE SCMCV + + + SBFSCV SMPCV) consuming less water, but more importantly, without arriving at the foot of the water pollution by nitrates. In this case the heat and CO2 produced by the CTE will be used to air-condition the greenhouses and the so-called carbon fertilization. If we add a system of automated transport suspended (which could use the batteries interchangeable, to save the ettrificazione rails) that do not compact the soil and changing the mounted equipment can do the seeding,

spraying processing, etc.. We should reflect on what these greenhouses would be different from those that we know, even in the most advanced countries, as they would look different farms, including the latest, which produce biomass energy and electricity, but do not imagine the potential of the system, which could bring them to assume a more important role in environmental protection, even replacing water purifiers (CTE + SCMCV SBFSCV + + + SMPCV DDCL). A part of energy production could be transferred out of the ground to help consume the CO2 product, which as of biological origin, if it were removed from the room, producing alkalinity to water and biomass would still be a good investment going to compensate, for example, the CO2 emitted by means of transport that can not be captured with costs equally sustainable. But, as I said, I'll do the enemies in this emerging industry, where digesters are designed differently and are content to emit CO2 instead of fossil fuels of biological origin, not to recover the heat of the water and smoke, do not use the carbon fertilization, not to alkalize wastewater, not to recover and purify irrigation water, not to transform it directly into the sludge into compost. The DCPCG are the only plants that can completely close the carbon cycle, which now, of course, does not end with the perfect oxidation (CO2), but with the continuous recycling organic matter and carbon, also inorganic. We are paying the very expensive environmental and energy engineering solutions incomplete until now realized, that you are concerned about global pollution and did not recover wasted resources. Everyone, including geologists, offer partial solutions. But to increase yields, multiply efficiency, reduce costs, we have to realize global solutions.

If a large part of the agricultural productions of the earth we will make using the composted product in DDCL and recycling the water, we will reduce the exploitation of natural resources. Do not forget the desertification phenomenon that UNCOD (United Natio conferring on desertified) defines it as

“land degradation in arid, semi-arid and sub-humid areas resulting from various factors is including climatic variations and human activities”. However, simplifying the concept to which I intend to get there, I say that there are as arid and fertile volcanic soils (rich in minerals). Therefore, I think we could make the fight against desertification through the mineral salts contained in the digested sludge, dehydrated and stabilized. Which, contain exactly the same mineral elements from which they originated. digested sludge stabilized and could be returned to the soil without spillage of sewage. remember the famous Nitrates Directive n.91/676 EC Council, which has failed (approved with the aim of reducing and preventing water pollution and soil pollution caused by nitrates from agricultural sources. This Directive has been implemented at the national level with Legislative Decrees no. 75/2010 – The 152/1999 and no. 152 / 2006 and the Decree of the Ministry of Agriculture and Forestry of 7 April 2006, Legislative Decree no. 75/2010), despite several years since its enactment, being still little respect especially because of the large number of farms and cattle than the areas for the disposal of the wastewater livestock product. Even the problem of nitrates can only be solved with implants DCPTCG, who farms should give the solid and liquid waste animal, receiving in exchange a solid digestate shovelable stabilized that would replace the expensive chemical fertilizers and unsanitary organic sewage, containing, as aforesaid, all the minerals in the right proportions and with all the guarantees of hygiene. should not forget that some countries, even today, prohibit the spreading of manure on agricultural land. The liquid digestate, that the same community laws and Italian in common with livestock waste is dangerous to handle without a control. Exclusions their responsibilities legislators, politicians and public technicians who pretend not to know the trade between businessmen and corrupt ecomafie which dispose toxic waste on farmland with a price list unnecessarily illegal denounced by investigative journalists, who can not even define courageous

because they are in the public domain, without anyone lifting a finger. All this could be avoided only through the facilities DCPTCG. The only ones who will be able to decide from time to time the times of digestion of individual lines of depurcogeproduction and individual workstations to produce biomass energy purifying water and air, including fumes. dimensioned The plant in this publication to produce 320 MWh would have n. 20 lines DCPTCG and n. 220 stations manageable compost production with times autonomous, circulating approximately 240,000,000 L / h of water, 1,800 T of compost per day.

19) ABBREVIATION OF THE CARBON CYCLE

Below is a table showing the salt content between fresh-water, river and groundwater. If we compare these values □□in mol / L with the reference values □□of marine waters, we realize that we could increase the concentration of the individual elements of thousands of times (especially, if the installation of "depurcogenerazionecovered" is located near the sea and the ' Water must not be used for drinking purposes). By consuming the CO2 in SCMCV, incidentally, we could provide precisely those elements where there is greatest need (calcium and magnesium) to defend, at the same time, the oceans acidification and coastal aquifers from infiltration of brackish water. If we can do this very important task of environmental prevention that today is not done anywhere in the world, we just CO2, which many are condemning summary trials. To be condemned is the only man who can not or do not want to use the defenses that nature would provide with proper plant design.

	Acque di fiume	Acque sotterranee
pH	6,6/8	7/8
Na^+	0,000025/0,0001 mol/L	0,00031/0,0025 mol/L
K^+	0,000008/0,00002 mol/L	0,000032/0,0002 mol/L
Ca^{2+}	0,00005/0,0008 mol/L	0,00032/0,0032 mol/L
Mg^{2+}	0,000008/0,0001 mol/L	0,00015/0,0032 mol/L
H_2SiO_4	0,00006/0,00015 mol/L	0,00012/0,001 mol/L
HCO_3^-	0,0001/0,0012 mol/L	0,0012/0,008 mol/L
Cl^-	0,0000015/0,000005 mol/L	0,0001/0,0006 mol/L
SO_4^{2-}	0,00002/0,00005 mol/L	0,00002/0,006 mol/L

Reference values □□in sea water in mol / L Na + 0.469, 0.0102 K +, Ca2 + 0.0103, 0.0528 Magnesio2 +, Cl-0.546.

Marine waters and soils we need to carbonates, not of salts of sodium that we should try if scampiamo where to dispose of the danger of CCS and run into that of artificial trees. From the article “www.repubblica.it/ambiente/2011/08/28/news/foresteartificiali”: “The artificial trees, are panels of various sizes, from one to ten square meters, which contain sodium hydroxide. When this substance comes into contact with carbon dioxide, shooting a chemical reaction that clears the greenhouse gases and produces sodium carbonate. “Whatever the details kept confidential for industrial reasons, the reaction products (which cannot be other than salts sodium) think they bury them in caves at great depths (such as CCS). As the C.C.S. not participate in the carbon cycle that needs to correct the acidification without salinificare aquifers sweets. In addition, “for the same synthetic trees, the financial aspect remains a question mark. According to the Association of British engineers, in fact, the cost of a single tree can be lowered up to 20 thousand dollars. While still maintaining a very heavy bill for the 8.7 billion tons of carbon dioxide emitted each year, forests (true) and marine phytoplankton can

absorb only half right. According to a study by the University of Colorado published in Environmental Science and Policy, only to erase the carbon dioxide emitted by the American cars (6 per cent of all CO2 emissions in the U.S.) should be spending $ 48 billion in forests synthetic ” . Again, no one has yet considered purification systems and depurcogeproduction global cities (Chapter 32), which should be the rescue of nature, with lower costs and producing clean energy.

For this it is necessary to replace the water purification systems and energy production with current DCPTCG All other energy systems and water treatment plants, even the most modern, are incomplete because they do not close the carbon cycle and if they shut it down, do not do it for the environment. In other cases do not interfere.

To promote solar energy, to talk little about the problems of disposing of solar panels that we will end after 10 -15 years. However, I do not deny the usefulness of solar and wind power, but the hard core of energy production will have to be made up of the depur-cogeproduzione globally. The only system that will allow for effective environmental remediation, water purification and increasing the scope of carbonates oceans; involving large bodies of water, in which there are large emissions of CO2, especially at the mouths of rivers, where there is more pollution and eutrophication. When you enter the covered lagoons (SCMCV – SBFSCV) decanted water, or surface, the sludge we produce will be due exclusively to the limestone and photosynthesis, which would produce greater absorption of CO2 at a lower cost than other systems, but more importantly, with immense environmental benefits such as:

1. the production of biomass for clean energy,

2. the consumption of nutrients in water,
3. the defense of coastal aquifers sweet,
4. the production of energy from biowaste from energy crops and land and water, without shoulder the cost of heating the sludge, which affects at least 40% on the cost of the energy produced in the current cogeneration is not matched to the CTE.

In DCPTCG, besides producing biomass, will also produce alkalinity to water and the calcium carbonate content in the sludge, transferred to the still fresh (DDCL) may be useful to the methane fermentation. Again, this is a great operating economics: nature alone cannot do these economies.

The calcium carbonate precipitates in the oceans will be able to recover from many millions of years. If they are lucky, posterity will find it in the limestone. But considering that the rocks may have very different formations, and extract the carbonates artificially by other kinds of rocks, more compact and with less percentage of calcium is extremely expensive, it is certainly trying to shorten the carbon cycle in plants DCPTCG. We must not forget that the digestion of organic sludge in anaerobic digesters feasible linear included in these global facilities, is an abbreviation of the carbon cycle, avoid fossilization and mineralization immediately useful to other components plant and animal life, producing, in addition, new add energy without CO2 emissions, recovery and recycling in the basins covered. Moreover, in the digested sludge stabilized and we can find a ready-made component, especially for agriculture, in ground and above ground. without suffering the economic and environmental costs in other ways to extract industrial. All the carbon, organic and inorganic, that recupereremmo through plants depurcogeproduction global will be inserted directly into the natural cycle which, as has been said, in large part, today,

employs millions of years to complete. The world’s population, which is growing, can not wait that long.

With the combination of thermal power stations and treatment plants covered, not just the CO2 neutralizzeremmo but we will use it as an energy resource and purifying unsurpassed and indispensable. Energy efficiency from the current 35%, it could go over 100%, because there would base only on the lower calorific value of the fuel, but the sum would become more returns. The recovery of resources would occur outside of the thermal power plant, but these resources would fall back into the central, increasing, in fact, the yield. Meanwhile, the outer sections, would occur, water and air purifying functions. I’d like to know who decided that the wealth is created only by producing cars, refrigerators, washing machines, televisions and mobile phones, of which we are saturated. A detailed management of the environment would create more job opportunities the industry, now largely robotic but a large part of the investments required would be offset by reduced wastage of resources: water, thermal energy, plant engineering, maintenance and the reduction of environmental disasters and health. The overall purification and depurcogerazione globalcovered of which, currently, there is no trace, they have the potential to become the most important activity in the world, not only for their noble tasks, but also by the number of insiders. They are the only activities that can produce real wealth and real jobs, dall’edile, to the technological, chemical, tourism, agriculture. The fight against global warming, some time should be understood that the designers had to change the way we think implants, but the resistance of the entrepreneurs who have invested in palliative and alchemy are too many current environmental and designers have also influenced public , which until now have not been able or willing to oppose a policy of global purification. There is no comparison between cost and performance with existing systems. Everything goes to

the benefit of the global system: if you put together the energy production and environmental protection do not waste anything. They will not be conceivable smelly landfill open because the stations will be lots of digestion and can be managed independently, even if you enter the same system. The fumes would not be dispersed into the atmosphere, it would come out from the buildings after greenhouse complex purification processes. Even the specter of the condensate, released along with the cooled flue gas in greenhouses and in the sewer dedicated to urban CO2, can be used to corrode limestone and transport at affordable cost carbonates to the oceans. But it is not conceivable even spills of untreated sewage, being superior to several hundred times the hydraulic load manageable

They will not be conceivable large CO2-free atmosphere captured by FSV in the cities, power plants and thermal plants. Any covered dock, will have the opportunity to bring down the percentage of CO2, consisting of particles heavier than air, in a virtuous cycle, before the ascent into the atmosphere. We should rather ask why the purification global cities has not elicited comments, as on the other hand, the river, lake, port, coastal, although these defenses do not exist. I would like to make it clear that the technology developed in recent years, while changing the way we protect the environment, should not be wasted. That of modern thermal power plants which has led to increased yields and purification and lowering the temperature of the flue gas would be used in full (without lowering the temperature of the smoke, it would be more complicated reduce emissions of CO2 in the water, as I propose); as that developed for the anaerobic digestion and biogas production, and equally that it selects. separates and turns waste to make them digestible, as the purification machines that if they are used in the treatment plants covered, it can be found in drinking water treatment plants.

20) REDEFINING CLEAN ENERGY

For the Italian and European tradition, is linked to the great works of engineering, the energy produced would be more appropriate with the DCPTCG, the one produced with solar panels and wind turbines, soon to be monopolized by countries like China for the cost of materials raw and production. But there is another reason, far more powerful: the energy produced by global depurcogenerazione covered will be much more sustainable energy, simply clean. To simply say clean may seem like a paradox, while there is an ongoing battle between environmental groups and the Veneto region who wants to turn to the coal power plant at Porto Tolle. Faced with the possibilities offered by depurcogenerazione covered, it seems that environmental associations, which do not yet know, and be content in the simple conversion to natural gas of Central, you are fighting for the crumbs. Wrong region and environmental associations: It ‘s all be redone. Later, we’ll also use coal, achieving results that environmental associations have never hoped for, but we do not even have believed it, because I had already been announced, although not articulated in publications.

If we used the evaluation criteria of rating agencies in the world, only to depur-cogeneproduzionecovered, which does not exist, it is for the triple “A”, being the cheapest and the only one capable of producing clean energy, purifying and protecting the environment from acidification, enhancing waste and waste.

I was and am sure that the purifiers have become too complicated to even be sustainable. They would need to be anticipated by systems of environmental prevention that

agevolassero homework. But, find and proposed solutions for the home and sewage, I finally realized that no one wants to improve the system, otherwise the proposed solutions would elicit at least a few comments. This is not racket, is unconsciousness. If you learn how to put together the systems, we realize that some are good (thermal) and others do not go well (scrubbers). Need to be modified plants that can not participate in the protection of the global environment. Everything can be part of a co-generation plant depur covered global (DCPTCG), especially the territory. An obvious example of land use are hydropower plants, but as these require large hydraulic jumps and are in crisis with reduced summer flow, the central depurcogenerazione indoor water alone may be enough cooling to create new energy throughout the year through multiple sources.

Thecovered depurcogenerazione take the best from energy systems and water treatment plants. I would not have if I had not brought forth out of the logic of force in activated sludge treatment plants, or if I had followed closely technological systems or strictly natural, as fitodepurazioni biological ponds and nature reserves. These solutions have capacity depurative hundreds of times less per unit area when considering the overlap of the floors and the greater specific pressure of CO2, not counting the possibility of adding more treatments in the basins contemporaries (oxidation, photosynthesis, ion exchange) and the possibility to extract the sludge produced, which can be transformed into energy resources; while in natural systems, they can not be extracted, with time, produce further pollution and emissions of CO2. I would like to make it clear to environmentalists and naturalists who advocate natural wastewater treatment systems (but accept CO2 emissions and heat loss of thermal power stations), which covered purifiers and biological ponds covered are based on the same principles while maintaining the advantages and eliminating the defects. First, the DCG

(covered purifiers global) and FSV, engaging the waters parallel to the river routes, represent the most useful basins and would keep the level in the rivers below. In the event of exceptional floods, holding back the waters in the basins (that would be recycled to cleanse them and enrich them at the expense of carbonate CO2 in agriculture and to use them), you could avoid the disasters of floods that we are accustomed to suffer and pay in economic terms, environmental and human lives. In D.C.G. and S.B.F.S.C.V. the greenhouse effect caused artificially on the stagnant pool, reproduce, in miniature, the effect of “azolla” (ch. 13) era “Eocene”, which allowed the reduction of CO2 from 3500 to 650 ppm (albeit in 800,000 years), imprisoning him in precipitation undigested (lack of oxygen), fossilized seabed. This process also takes place in the reserves, nature reserves, in the long run leads to the death of the seabed and basins (ponds, lakes and bays), preceded by a provisional biological wealth. The nature is not able to extract from only the organic material produced in excess. The D.C.G. and SBFSCV, however, would intensify the processes consuming the CO2 and nutrients from agriculture and organic, but do not allow the fossilization of precipitation, releasing the excess sludge from the bottom. In these systems, not only will increase considerably the productivity of biomass (as a greenhouse terrestrial, exploiting the Henry’s Law, which increases the solubility of gases in water, in function of the specific pressure of the gas itself) but we can connect them directly with the energy production without road transport, large pipelines, gasifiers, etc., it being understood that depending on the space and territory, can communicate with different solutions with all other energy sources, if only to recover the heat, cold, fumes and clean energy produced. The D.C.P.T.C.G. represent a huge potential in the management of waste, incinerators and landfills without going through composting, turning them into clean energy resource. In essence, would produce energy, such as nuclear power, but without the same amount of water, with lower costs and without worries nuclear using CO2 as a greenhouse gas but

not as a free tool to produce alkalinity and biomass, helpful environment and sustainable energy production. No longer makes sense to run nuclear risks when they have the depur- cogeproduzione global economy, but it makes no sense even waste water and air 65% of the thermal resources in thermoelectric and finance at the same time, with reduced rates, modern anaerobic digesters with cogeneration, wasting almost 50% less energy to heat the sludge to digest. This means looking back, designing the interests of our descendants. E 'fair to ask why until now no one has thought of that? And why they have remained silent on the global purification something that already would have done it and you could see the rest?

21) TECHNICAL WASTE, A GREATER PROBLEM THAN POLITICAL OBSTACLES

One of the answers to hypothetical questions left unanswered in the previous chapter is very simple: no solutions have been designed, rather trivial, globally, because they had not yet been invented banal purifiers covered and biological ponds covered, which, until Now, the tech world does not want to believe because they do not want to admit that, in addition to energy waste and heat, there are also huge waste technology in the machines invented for the purification local, which in the purification global, much more powerful, do not need. No one feels guilty about the wasted resources as the world heats up, the economy is falling apart, unemployment is rampant. The global environmental protection is the only solution to relieve these three major problems at the same time creating a

sustainable and renewable wealth in an infinite loop in which all sectors would be involved, without exception. All taxpayers angers the view of many public works abandoned, made on the basis of growth forecasts are wrong.

A striking example of this waste are the stages and streets made in Greece during the 2004 Olympic Games, now completely unused that have made the ultimate failure of that nation, the construction bubble in Spain has had the same effect. But even in Italy there are many examples of public works left half, industrial buildings, hospitals abandoned before being put into operation. The only area that has not grown properly is that of global environmental protection, which would have huge employment potential without wasting anything, in fact, recovering resources. Unforgivable sins of politicians and technicians without ideas.

Cities today are very different than in the past, but from the environmental point of view, have remained very backward. At best convey the wastewater out of the urban perimeter. But they do it in the wrong way if you think that a city like Rome has an intricate network of 3500 km (source: ACEA) and the water must travel to get out of the huge mazes. City planners have worried little degradation of sewage and purification, have not sought and found no escape routes to exhaust gases and polluted environments. The legislature does not claim the complete purification of the water discharged by the industries. Agronomists know that most of the fertilizers and pesticides are dragged by the water run-off into water bodies. They also know that deep in the recesses tillage allow the infiltration of poisons into the groundwater. How can we defend ourselves from this universal degradation of the environment caused by man every day? The answers are more than one but all related to respect for natural cycles of nature, which, however, were interrupted and altered. We need to find

other ways to restore them, not too simplistic and not too technical. For example, the return of organic fertilizers in the fields could be done, but with the hygiene standards of digestion and composting and stabilization processes in ground vertically, with the recycling of water purification, which can occur in DCPTCG. We must go beyond the “global purification” of which I was the only one to speak, which was never born, and arrive at a more lengthy and complex that it is, in fact, the “global depurcogeproduction” which will arrive to produce food and electricity protecting the environment. But as the global purification, can not be completed in a single plant but in the grand system represented by the area in which we live. The air cleaners, as they are designed today can deal with very little water, and it is damaged most of the sewers that the organic load.

The decomposition of organic matter is preceded by a stationary phase during which the microorganisms secrete enzymes that subsequently combining with the substrate nutritive catalyze reactions of demolition. During this phase there is no increase in the bacterial population. E ‘need to take advantage of this phase to physically separate the substances to demolish from those that do not need to be decomposed, but the sewer system does not allow, indeed involves in the decomposition slurry also from other sources, piovani and industrial. (The vertical modules purification, sewage treatment proposed in the global urban, very close to discharges, anticipating the process would make possible such a separation without stopping, as they now old Imhoff tanks, sedimentation, but continuing until the completion of key stages of the purification process with the oxy-nitrification-photosynthesis (onf) that allows us to recover and also neutralize the gases produced in digestion without emitting odors and gases in the atmosphere). Nobody seems to know that they would like water bodies, as well as purified water, even with more alkaline properties to be transported to the seas.

It seems that everyone knows that the atmosphere would like free air of fine dust, soot, smog, toxic gases, and with the right proportion of CO2, but none are truly committed to breaking down these emissions at source. Nobody noticed that you have to make a jump in the amount of environmental protection and to do that you have to simplify the systems, make better use of natural resources, such as small hydraulic jumps of rivers, photosynthesis, limestone cliffs, the waste heat from power plants thermoelectric. We were also lucky, the Japanese tsunami and the economic crisis have saved us from safe investments in nuclear power and the bridge over the Strait of Messina. But, of course, incumbent works in other investments that will create more economic and environmental disaster: incinerators, landfills, treatment plants CHP plants, thermal power plants (such as the conversion to coal of Porto Tolle) that will continue to disperse heat and CO2 and economic resources. This may be, in short, investments exceeded. Before spending the scarce resources that we have someone proves me wrong. Can anyone do, whether public or private, but especially those who think they have a mandate to manage these important resources for the country. It ‘s too easy to extract oil or gas from the ground, burn it in the CTE emit emissions into the atmosphere through the chimney (which no one thought to modernize), heat the water, river, lake, marine, not purified, do not alkalize not recover wasted resources. At the same time there is excess staff, non-saturated, offices and useless bodies, huge amounts of people laid off and unemployed. As an engineer who worked for a lifetime of industrial and environmental modest and executive roles, I feel teased by the designers of the top-level design environmental and energy plants. I feel cheated by Congress also international summits that are not solutions against global warming. If, as a plant engineer, I did not say that this system is wrong impiantisticamente, I would not do my duty. I’ve said when I invented the water purification and sewage treatment plants covered that did not express its full potential. Today there is not only the competitiveness among

companies, who are the first to close its doors if not competitive. There is also among the nations. We should not be fooled by what appear to work, we might have some unpleasant surprises when the bill will be paid. We begin to admit that until yesterday we have been living beyond our means, consuming resources even our children and emerging countries who today claim their rights of access to resources and prepare to compete with them without raising protective barriers that would forced, miserably, to fall. Become increasingly difficult to govern a country, being objectively difficult to split poverty if you do not create new activities that produce wealth. This seems to have understood that all but the politicians and bureaucrats Italian and southern Europe. Not having ideas and projects governments care not to frighten the rich who have not yet jumped ship. They hope that these create jobs, discounts doing more and more taxing on the environment and the poor. But the system can not hold and are coming out at the same time environmental problems, employment, social. In my day there was a fair comparison between bosses and workers. Today, capital moves at the speed of light from one end of the planet and escapes their social responsibilities. Personally, I am opposed to large accumulations of capital and the globalization of money, but you have to take note of this fact. Today, there are large hot money speculating on cheap labor, on scarce environmental protections, etc. But there are also funds that claim of collateral and invest in the “Country System”. Germany does not pay interest and attracts many more capitals of who bleeds to pay for them. Who, out of fear or moral conviction, it is not attracted by the reckless speculation choose the “Country System”. Nobody wants to lose money as happened in Argentina and, as will happen if Greece will be forced to leave Europe. Italy, like Greece, Spain, Portugal, Ireland, is not in a position to attract speculative capital or those that require collateral. He has no choice; it must improve the “Country System”. The leading sector of the economy, it becomes more and more the public that should also attract private

investment. Unfortunately, the Italian public sector is the ball and chain of our economy and can be renewed only sending home the political class and technique that led him in this state and with a deep moralization of the ruling class. Before they return to foreign investors we have to reassess our share capital, made the environment in which we live and where we want people to come to vacation. If you do not lower the cost of energy and make sure no coastal bathing lose the tourism sector and what little remains of agriculture and industry. E 'useless to put the flags for bathing blue patriotic spirit and not to scare the tourists, floating algae in which we immerse ourselves in the summer is not an optical illusion, we must shift the while trying to pass where we can bathe. It may be that these algae have also therapeutic properties, in this case we must ensure and possibly publicize. But it is not honest to ignore them. We begin to put aside their titles, academic, bureaucratic and evaluate ideas, starting from the "global Depurcogeproduction" that will create more wealth than any automobile factory or appliances in real terms, employment and capital, but, above all, ensuring yields exponential in environmental protection. It would be only the first step, to teach the world how to prepare the increase of the world population while protecting the environment and creating immense job opportunities. We know that the old "place" fixed which has ensured peace for many generations is disappearing, but environmental protection, energy production and food connected in a global system could restore the "place" more than in the past. Above all, it would be decent and rewarding for all participating directly in the endless cycle of life through the creation of infrastructure, management systems that will ensure the neutralization of human activities that alter the balance of nature. But do not kid ourselves, if we want to occupation health and environmental protection, it takes great works of man. These can not be invisible even if they have to protect the oceans. Greatest works of the great factories, which act in parallel to nature, without cheapening it, withdrawing from the same minimum, and returning it to

nature, in various forms, but in a state again good for the environment, jackets nothing is destroyed and everything turns. The problem to solve, and just the process of transformation that must be complete and sustainable, without creating wastes of any nature that decrease yields and damage the environment. We were wrong to create the consumer society, we had to create the company's transformation. We would know that we would have better protected the environment and created a lot more jobs. Systems to transform the "consumer society" in the "transformation of society" exist, but are variously scattered in all areas of human activity, we must put them together in the right way. If we start now the so-called "job" will return for many and for all future generations. There is no money? A fortiori, those few who investiamoli where we can have an exponential performance, which can only be ensured by the fight ocean acidification, from energy, food and environmental protection in an endless loop from which, today, we're out as antibody side. It can produce food energy, ocean alkalinity and a lot of jobs consuming CO2. Someone explain to me why the IPCC, ENI, ENEL, ENEA, CNR and many public and private organizations around the world are doing everything possible to bury addebitandoci costs. Not only in Italy, but the whole world is ruled by economists. Who better than they can understand that you can not waste 60% of thermal resources, and you can not spend 30 billion dollars in the world only to study the prototypes of the burial of CO2 when this gas could be used as a valuable environmental resource? World Bank which provides loans with exponential returns? Each euro spent against ocean acidification would perform exponential curve going to counter the acidification of advancing with a logarithmic law in base 10. Understanding these things, which oddly enough, generations of super specialized technicians in the entire planet did not understand, maybe it's easier for economists. In the environmental sector, in the face of very strong proposals and in contrast with existing systems, such as domestic sewage, sewer, covered, overall, the industry, not

just public, waived their right to reply. They preferred to ignore these provocative proposals. If I had stopped to have died alone. No one would know who is right. Given that the current environmental protection systems can not grow beyond the point at which they arrived, what do we do? We waive the growth, or we try to open a breach in the wall of rubber technical environmental protection? Luckily came new ideas that reinforce earlier. Can I still hope to be right. It seems that the man in his short life should deal primarily in industrial productivity, financial speculation and construction, while it lacks the essential works to protect resources for their children. All this happens in large part to the lack of ideas of the ruling class and appropriate technical solutions. Should not be to have their ideas but only to be able to transpose. You do not go anywhere if you do not have the courage to change. Among the changes to be made should have the priority treatment plants, landfills, incinerators. Very few of these installations fall into the need for global environmental protection. You can save only the power plants that combination, not for programming, will be the right size and you will find the right place. Even renewable energy, wind and solar will come resize the birth of DCPTCG Being more expensive and discontinuous, the new energies will be essential in some applications, but will not save the world. The economic crisis has reduced the number of appearances, but there was also great excitement at the recent 2012 Summit of the World Future Energy Summit in Abu Dhabi (137 countries, 600 companies). However, these energies will be monopolized by those in the raw materials, in particular from China at the time, the only one able to lower its cost. But even with the low Chinese costs, the new energies, they can never compete with the depurcogenerazione global economic and environmental utility.

They are a big bluff political and technical district heating systems of the city from the economic point of view. The costs

of the distribution and regulation of the free heat greatly exceed those of local energy production, realized with modern flue gas condensing boilers, whose thermal efficiency is arrived at values □□above the lower calorific value of the fuel. In addition, the heat in the city serves only at certain times of the year. Much more simple, inexpensive and can be used all year round, it would be the recovery of heat in large and simple bundles of digester linear in DCPTCG referred to the same C.T.E. would be part of. These would be, able to cool the fumes, neutralize the residual CO and CO2, SOx, NOx, alkalinizing the same cooling water and in different sections, huge capacities of other waters, derived from waterways, water bodies and coastal areas, urban sewage and liquid digestate produced by the digesters, as well as dehydrating and stabilizing sludge.

You do not need to be a scientist to understand that with this system, we would have a huge capacity of the purification and digestive also revolutionize the management of solid waste, urban, agricultural and aquatic biomass by reducing the cost of 100%. In the near future, it will not make sense to have the current waste chain that has ridiculed the city of Naples in the world and he contrasts the common ill prepared to accommodate inefficient, polluting, and foul-smelling, which create very little employment, such as landfills and incinerators. Nothing to do with D.C.P.T.C.G. which would produce energy purifying water and air creating many jobs, direct and indirect. These plants do not exist anywhere in the world, would be happy to pay an acceptable cost the organic fraction of municipal waste (MSW) to transform them, without accumulate in clean energy really, no one can doubt. When I talk about clean energy, I am also referring to air emitted by the same DCPTCG that they could not even produce unpleasant odors and fumes, the whole process taking place under cover and with no accumulation of organic substances, waiting to be loaded into the system, given the large amount of loading

stations available in the anaerobic digesters linear. Another process which, in general, produce unpleasant odors in plants is the dehydration of the sludge, which requires an accumulation of the same and the treatment discontinuous. In D.D.C.L. sludge treatment, would be aerobically and the air would not be expelled directly into the atmosphere, it would pass through the greenhouses limestone, where the treatment of alkalinization of smoke and water would also result in the removal of odors. But what matters for the economy will be the largest potential for energy recovery allowed by the system, which could cut energy costs thermoelectric worldwide, making it even eco-friendly.

Looking at the table below EPRI (Electic Power Research Institute), extracted by Article available on-line: “http://www.enerblog.it/confronto-dei-costi-al-2015-delle-principali-tecnologie-elettriche.html “We can deduce easily that recovering the waste heat and entering the CTE in a system D.C.P.T.C.G. using a technology cheaper than the CTE, automatically decrease the capital cost and the cost of energy while producing clean energy in place of the current pollutant.

Stima dei costi di generazione delle principali tecnologie elettriche negli USA al 2015 (dollari a valori costanti dicembre 2008)

Tecnologia	Taglia MW	Efficienza %	Fattore capacità %	Costo capitale *(1)* $/kW	Costo energia $/MWh
Carbone impianto supercritico a polverino, no CCS	600 -750	38	80	2.650	**66**
Carbone IGCC senza CCS	800	38	80	2.960	**71**
Gas ciclo combinato	150-170	47	80	880	**74-89**
Nucleare	1.400	33	90	4.860	**84**
Eolico	100	-	35	2.350	**99**
Biomassa letto fluido circolante	75	28	85	3.580	**77-90**
Solare termico parabole lineari *(2)*	125	13,5	22-32	4.851-6.300	**225 - 290**
Fotovoltaico	20	10	26	7.981	**456**

(1) Costo "tutto incluso"
(2) I costi capitali e del kWh variano in relazione alla tipologia di raffreddamento dell'impianto e alla presenza o meno di un deposito di stoccaggio del calore

Fonte: EPRI (Electric Power Research Institute), novembre 2009.

In this table you can see the returns but also capital costs and production costs of other energy sources of energy. How to specify the table, these costs, for thermal power stations will increase substantially with the application of CCS while decrease with the system D.C.P.T.C.G. it can be noted that already in the current situation the differences of the costs, in particular, between the solar energies and the combined gas cycle, are considerable (4 to 9 times lower). These differences could more than double with heat recovery allowed by depurcogeproduction global thermalcovered, if one includes investment spared in the waste chain. The new costs, capital

and energy per kilowatt produced, although halved, would also include the protection of the environment against global warming, which does not exist today. The water treatment systems, landfills, composting the plants, incinerators present, are only palliatives unsustainable burdens on communities worldwide. Not surprisingly, today we speak, at the same time, the global economic crisis and global warming, while corporations are making a profit, without solving any of two problems. The global water purification systems on which work for years do not cost the community a euro cent. For the most part do not even need to be tested for the simplicity with which they were conceived. The heat recovery free quadruple the potential of digesters cold and digestion would become, by far, the disposal system more efficient and clean organic waste, other waste, are all recyclable industries. There would be huge economic benefits to put together in the same plant, the recovery cycles of water, waste and energy production. Fossil fuels, made clean from the matching of CTE with FSV, would be integrated with the biogas produced by DDCL. Plant production of aquatic plants, would be increased with the contribution of CO2 and water pollution through the purifier combined, leading, in fact, the performance of the original fossil fuel well above 100%. The same issues of energy production, and original notes, would be retrieved, in large part, in the system without expel into the atmosphere. This means, for example, that if today we have a 320 MW power plant, with a combined cycle, fueled by methane, which consumes 42,400 kg / h (64 688 m3 / h) of fuel and produces 74,000 kg / h of CO2, a side by side purifier covered with digester, depending on the size and efficiency of the same, we could reduce the consumption of methane up to reset it, replacing it with biogas, and we could achieve near-zero CO2 emissions, not just heat produced by the plant, but the other, that would produce waste treatment plants, removed from the territory (treatment plants, landfills, composting).

The underestimated problem of wasted heat.

I have not found data for Italy, but I mention the data of France, extracted from a publication available in the network, where it is stated that the cooling of power stations in 2006 absorbed 19.1 billion m3 of fresh water, that is, the 57% of total withdrawals of water in the country, 93% of this water is returned to the rivers. Before we talk about Italy, we make a few brief remarks on these French data. Although in France use nuclear, thermal considerations are also valid for thermal power stations. If we determine a temperature difference of 10 oC, with which these waters are returned, we can feel the immense energy source free (with costs that users have already paid), which only in France is about 0.206 billion of annual MW thermal [(19.1 * 0.93 * 10 * 1000) / Diff. conv. kcal-MW860.000]. In the World, if rapportassimo this value to the current population of about 7 billion, which is about one hundred times the French population, we could talk about a potential leakage of about 20.6 billion MW thermal. If we assume an average cost of production of $ 80 MWh thermal energy, and we evaluate the thermal MWh about 40% of the electrical system, we would have a value of approximately $ 660 billion per year (20.6 * 0.4 * 80) In this value we should also add the capital cost of each incident MW of power that we had to spend to produce this heat (provided for free), that would be about 40% of the cost of the power plant, which in the cheaper version (combined cycle from the table MEPRI) would be worth $ 880.000/MW, amounting to 1326 billion $ / MW [(880,000 * 0.4 * 660 billion / amortization in 20 years (365 * 24 * 20)]. Taking the sum of the economic value of the losses would arrive to 1.986 trillion to $ / year (1326 + 660). We considered only the waste heat in the water, without considering what dispersed in the flue gas. And we have not considered the forthcoming increase in the world population of over 2 billion people. But other immense resources, which is impossible to quantify, are wasted through industrial chimneys

and the same thermal plants more than just heat harm the environment. Faced with these numbers, corresponding to Italian public debt, only the depurcogeproduction thermalcovered might make possible the global recovery of these vast resources. But it would be too easy to recover this huge resource just to lower the price of energy and clean it from CO2, as I mentioned in previous publications, to which nobody believed. should be, however, the opportunity to invest this immense resource, directly in new facilities, which in addition to clean energy, help to produce other with higher yields, purifying the air and water pollution. These new facilities will replace not only the energy production plants, but also purifiers, most of the landfills, incinerators, composting, co-generators that are not capable of protecting the global environment from pollution. resources will be everything that today is pollution by man and nature.

These are the reasons why I think the engineers the most dangerous politicians for growth and the economy, especially if they claim to live off the interest on the solutions of the past, as is happening in the field of purification. Neither do I expect it to trying to improve this area that I know well, I would be led to the clean energy wasted in heat recovery and protection of the environment in an exponential than at present. I did not expect even to collect back silences by the environmental authorities and, above all, ENI, which I anticipated, before making them public.

22) THE GREAT PURIFIERS COMPLETE COGENERATION ARE

EXCEEDED

The sludge civilians, have low productivity of biogas, but today this is reduced further, having already issued large amounts of CO2 and hydrogen sulfide in the long distances and sewage through the open tanks of equalization, oxidation, thickening, etc.., Damaging the environment and the economy. If we had kept the freshness of the slurry with the domestic sewage and drainage system (which would not require any energy, but only water savings and maintenance), we could have used the nutrients contained in the sludge to produce aquatic biomass in SCMCV or in SBFSCV, without energy to oxidize sewage septic, as we do now. We transferred the sludge produced by these fresh biomasses to anaerobic digesters, where they were mixed with the organic fraction of municipal solid waste agricultural and agro industrial, which would increase the yield. The digesters, thanks to the heat supplied free of charge from thermal power plants, could ensure performance with reduced time of a mesophilic digestion, returning to power the biogas produced. The power plants, to thank, ricambierebbero the favor by providing basins CO2, which, being an excellent nutrient, would help to increase the production of plant biomass, and thus the production of new energy. The liquid digestate released as waste water from digested sludge is dewatered an excellent nutrient for aquatic biomass that can be grown in a closed loop in SBFSCV entered into the system D.C.P.T.C.G. without polluting the waters. Currently, large wastewater treatment plants with cogeneration, waste about 75% of the thermal energy to heat the sludge, there is very little for energy production. Only those facilities with over 100,000 population equivalents can afford cogeneration. But the game is not worth it when you consider the low productivity of biogas sludge (for the reasons stated above) and the enormous costs of the entire system. So much so that in some systems it is beginning to

lead to the digesters other waste material to digest. As long as you continue to put the pieces in a system that does not work? Until yesterday, this solution could be justified by the fact that it avoids the emission of unburned methane, 22 times more harmful than CO2, today the system is no longer justifiable. In F.S.V. distributed in the city and neighbors to thermal power stations we can avoid harmful emissions and CO2 and purify water in the cities themselves.

Although, fossil energy is already the cheapest, the efficiency of thermal power stations does not exceed 40% (see table MEPRI, Chapter 21). Only recently with combined cycles and light fuel you get to about 55%. If we try to assign a value to the innovations that would allow the depurcogeproduction pool (highly variable depending on the quality of the energy matrices used), adding up the various rates to the original performance of the thermal plant, assuming 35%, we could not only eliminate the discharge of CO2 that penalizes them compared to the new energies, but to get to higher energy yield ‘80%. If we attribute to the recovery of the heat wasted an increase in the energy production of 30%, the production of aquatic biomass in SBFSCV an equivalent of 0.5%, the increased quality of the produced biogas (depleted of CO2) a value of 10%. The sum of the various rates is summed with the original yield of 40% would arrive precisely to ‘80%. But it could also go much further, if the panel was modern, with combined cycle and if we consider the investment not required, to achieve the current chain of solid waste and wastewater treatment admirably replaced by depurcogeproduction global thermalcovered. The thermal generation, you can come close to that amount of solar or wind power for emissions but will be even cheaper cost. This source will have an even greater value, subtract the environment because of the pollutants that have degraded the land, the waters and the atmosphere (waste, CO2, phosphorus, nitrogen, methane, SOx, NOx). Even when the hydrogen will become a

reality will do as much for the environment. The hydrogen will be very helpful, especially for food transport, and other sources, if competitive, contribute to the production of energy that will not be able to produce with the depurcogenerazione. According to current technologies and resources, we will match if a coal plant, a sewage treatment plant and a biogas plant covered, even the coal plant can become sustainable. The system is very simple: the fumes of the two plants would be placed in the greenhouses of the "biological ponds covered with limestone warehouse vertical" (SCMCV), while the heat of cooling water of power plants, heat up the digester, the gas produced by the digesters would feed biogas plant. At the end of the process there would be some small trace of air pollution of coal-fired plant, if the plant will be well proportioned. The F.S.V. or just digesters, could be well matched with the nuclear power plants (if they were really safe) to use the heat of cooling water reactors (much higher than that of thermal power stations) to produce biogas quality to be consumed in the urban network. Nuclear power, if she was sure would save the calcium to neutralize the CO2, but without CO2 we could not alkalize the water that we send to sea. This is a problem that not even the UN and the IPCC have considered, indeed, are the major causes of CCS The countries that use nuclear power are not exempt from pollution of water bodies and the one derived from the current handling of waste, are bathed by the same sea that would need a greater supply of carbonates that only DCPTCG can help.

23) REPURPOSING THE SMOKE STACKS OF THERMOPOWER PLANTS

Having identified a new way to protect the environment, also

involves checking all the possible applications and the modification of the chimneys and fireplaces is, undoubtedly, one of the most important, having the treatments of CTE stopped right at the chimneys, while they should continue. As anticipated, the new chimneys do not expel fumes. We could call them “cooling chimneys and flue gas purification” (CRD). I will not go in the processes of filtration fume used, which are good and can still be improved. I would like to go over the chimneys to recover the heat and most importantly, CO2, SOx and break down the various toxic dust escaped previous treatments. Future smokestacks emit no smoke rise into the sky only to cool it down, even the smoke stack will contribute to the air for cooling. The fumes will be recalled, also upwards ensuring the necessary vacuum to the combustion chambers, but through external ventilation of the chimney will be called back to earth to recover the waste heat and CO2 and complete the purification of the same. Where possible, cross the buildings emissions, will come from above, but can not be defined more of the fumes. It will be cooled and purified air which sold its heat and CO2 to produce their own purification, alkalinity, biomass energy, even fruit and vegetables. Apart from all the provisions for the purification global described in detail in this book is that the best you can get for the protection of the environment, there must have been some sort of collective sadism in those who have thought about the CCS against people and the economy.

The smokestacks, as we know, can be a natural or forced ventilation. Are dimensioned only according to physical principles to overcome the load losses that hinder the ascent of the hot air upwards, being the purpose of the chimneys limited to the dispersion of hot fumes into the atmosphere, regardless of the content of the same and by temperature. The natural draft is mainly function of the height of the chimney and the density difference between the flue gas inside the chimney and the outside air. In fact, more fumes are hot, they

are less dense, the more light, the more easily the atmospheric pressure outside air will tend to expel them from the fireplace. The smoke density is expressed in Kg/m3. A formula is normally used to determine the smoke density can be expressed thus:

$$d_{fumi} = d_0 \frac{273}{273 + T}$$

Where d_{fum} is the density of the fumes sought, d0 is the density of the fumes at 0 ° C, 273 is the transposition in degrees kelvin (absolute) value of 0 ° C, T is the average temperature of the combustion fumes. The stack height primarily affects pressure of the combustion chamber, generally more is high, the greater the depression, however, within a certain limit (if too long the smoke cools encumbers and create an obstacle to their same spill. Then resort to forced ventilation).

The new proposals smokestacks, used for the recovery of CO2 and heat, in principle, comply with the dimensioning of the chimney, such as height and cross section, as a function of the fuel system of the combustion chamber. The change I propose is to create a negative pressure outside the barrel, without altering the operating conditions upstream. The fumes, at the exit of the flue will be recalled downwards, parallel to the same, as they exit the chimney, respecting the working conditions of the combustion chamber. The end of the chimney, where there is the outlet air, must be modified to the maximum widening the section to reset the kinetic rate of the air (as if it were the outlet into the atmosphere) so that it can be called down, favoring mixing with outside air for a partial

initial cooling. The fumes, before starting the descent will pass through an electrostatic filter to capture the heavier particles and unburned gases escaped to previous treatments. The gases, such as oxides NOx, SOx, CO, are composed of molecules without charge that in electrostatic filters, via a high electric field between the electrodes where the air passes at a moderate speed, are electrostatically charged causing the precipitation on the electrodes manifolds connected to ground. The end of the chimney is the ideal position to carry out this treatment, just because zeroing the speed to accomplish the reversal of flow. The section would become the one shown in the attached drawing and the vertical part, would be constituted by two concentric tubes, of which the central one, is constituted by the flue original, while the outer serves to convey the fumes downwards making them pass in an interspace bounded by an insulated wall to cool a tube bundle spirally wound on the central wall of the chimney. We could use the heat removed from the smoke in different ways, but I think the easiest is to increase the amount of heat that will be used to heat the digesters and then the buildings greenhouse. Therefore, the tube bundle will be fed from the collection basin the hot water of the condenser end of the central termoettrica (brac) which will have a temperature of about 40 oC. The water will return to the same basin. The sizing of this tube bundle will be proportioned so as to have the output hot water at a temperature of about 60 oC, mixed with the hot water already present can bring the inlet temperature to heat exchangers of the digesters at about 45 oC., as assumed in the calculation of sizing next. As can be seen from the drawing, in the tower C.R.D. there is also a spiral staircase for maintenance. At the base is provided with a collecting sump of the condensate and the connection with the ventilation channel that carries the fumes to sections SCMCV F.S.V. of buildings. Furthermore, it provides the damper shut-off, which allow you to send the fumes directly into the ventilation duct when performing maintenance of electrostatic filters. The channel being constantly depressed, still ensures

the evacuation of fumes. The recovery of the fumes is as follows: Fumes, climbing upward, when they find the expansion chamber, slow down your running, but they are called down (through electrostatic filters) by the electric (evf), passing descent in the tube bundle, containing the cooling water, while the condensate in the precipitate collection wells to be discharged, through the hydraulic guard in the basin SCMCV closer. This system allows the normal operation of the chimney with the solvent fumes into the atmosphere if the recovery system is not working.

In S.C.M.C.V. there’s also the smoke, cooling waters and those to alkalize. Docks of these will start lifting the water to complete the smoke cooling and carbonation cold of the limestone rocks in it. From the adjacent basin SBFSCV, will start the purification of polluted water and greenhouses SMPCV, will continue the consumption of CO2, as described separately.

In light of the above and of the serious environmental problems, it is evident the inadequacy of existing chimneys for the purpose of heat recovery and CO2 emissions. At least those on big issues should be modified as indicated above. Anticipation, easier for small flues, which fulfills this criterion has been reported in the publication entitled “purification global cities” that will reclaim the end of this publication, where even a sewage system was expected to capture the city □□toxic gases, particulate matter and CO2.

The Italian ruling class of the seventies can not solve environmental problems, not insurmountable, has abandoned chemical and steel poles. It remains only as a last bastion of Ilva, but installation conditions pitiful. Just look at the pictures on Google maps. The smokestacks, not only in Italy,

have never changed. Even the sewers have remained the same. Starting from the change of these two insignificant environmental elements, you can get to the overall protection of the environment and the only clean and sustainable energy.

ILVA, the problem of dust red and black covering men and things and lung neoplasms, is solved by covering the areas in which enliven the coal dust, creating a plant by placing the air from above, through a plenum Distribution and use of modern air filtration systems extracted from tunnels placed in the low-lying areas, in particular with cyclone filters and electrostatic. Instead, the hot fumes, could assimilate to those of a thermal power: recovering the heat and the CO2 energy and environmental purposes, with a treatment downstream of the filtration type DCPTCG The hot water produced by the plant, more than those produced by the cooling of the flue gas, may be sent to the DDCL, to heat the digesters and produce energy, while the filtered air, may be, further, treated wet, passing through the buildings greenhouse (FSV), contributing to the cooling of the flue gas and the production of biomass energy through the CO2 content. But this criterion, which would go well beyond the filtration disregarded, is still unknown in the world of energy and environmental industry.

From the accompanying drawings, it can be noted that in the plant shows two chimneys CRD, one of which belongs to a generic thermal plant fossil (ITfos) that may belong to a thermal power station of the old generation or coal, to an incinerator or to a blast furnace : all the chimneys can be transformed into CRD, only depend on the sizing that comes out according to the temperature, the amount of fumes and the operating condition of the combustion chamber. The second chimney CRDbio, undoubtedly belongs to the central thermal biological (CTEbio) that consumes the biogas produced in the

plant. As you can see from the diagram “1”, all the heat contained in the basins of warm water (brac) and most of the content in the flue gas (which are mixed with air) is used in the plant to produce biogas digester , biomass energy in greenhouses, or to erode the limestone rocks that produce carbonates in the water. Even the smoke and heat of a blast furnace can perform a useful function for the environment if it improves the filtration of fumes, amends the chimney and close to the old plant or factory produces a DCPTCG

In Taranto, the judiciary has challenged old problems: we are still in the air filtration of the seventies. The dust covering everything you can also see the interactive Google maps. You also see a tangle of chimneys which is impossible to remedy with the criteria of the overall treatment. It should be spaced plants and create the conditions to recover dust heat and CO2. The latter can serve as a resource to increase yields also general of the whole plant. We must not forget that even the smoke produced from burning coal can be cleaned from CO2 by passing the FSV. Rebuilding the industrial area of □□Taranto with the criteria of the overall purification could be a major challenge and tempting, for our technology.

Finally, from the whole philosophy plant which precedes and especially from the drawings and from the flow scheme of a plant DCPTCG it can be seen that the biomass and sludge produced in the building FSV are transferred to the digester building DDCL. This is able to receive, above all, energy matrices coming from the territory. Indeed, those who have local production, will be a very small part not to overly enlarge the facilities.

The thermal potential of D.D.C.L. recoverable in the World of thermal plants and power stations, existing ARE VERY BIG. With

the heat currently wasted, we can digest a quantity of biomass that easily allows the doubling of energy production. To saturate the potential of digesters should convert fossil energy produced in bio energy, or create hybrid systems that combine the consumption of fossil fuels and biofuels. Or use fossil energy to heat the digesters, biogas send carbonates to the sea and with a high concentration of methane to the city. The only choices will be dictated by economics, is aimed at ensuring the protection of the environment through the passage of smoke and water through the FSV. Only dimensioning a system one can account for the situation.

24) SIZING OF A SYSTEM OF GLOBAL COVERED DEPURCOGEPRODUCTION (DCPTCG)

To describe, in a concrete way, the size of a hypothetical system DCPTCG, which combines a CTE in a purification system to clean the indoor thermoelectric power, improve yields and protect the environment, take some data from a publication available on the net, on a thermal power plant with a gross power of 320 MW, by recycling the flue gas through the chimneys, cooling and purification (CRD) and making it work in symbiosis with DDCL and F.S.V. I thank the authors of the Faculty of Engineering of the University of Pavia for the valuable contribution made unconsciously:

http://www-3.unipv.it/electric/conven/Esercitazioni% 20of% 20centrali% 20termoelettriche.pdf.

Compared to the original publication, I allowed myself to imagine a modernization of thermal power plant, converting it to a combined cycle to increase productivity. As is known, the increase of yield is done by inserting upstream of the steam turbine, a gas turbine which produces electricity other with the same flue gas. Hence, the part on the characteristics of the steam has been left unchanged. I apologize for the blunt instrument, but if I also entered these details, I would not be able to get out. The objective of the undersigned is not to design a thermoelectric power plant, but to express the energy plant solutions and depurative starting from the existing thermal power plants. The essential data of the thermal power plant are as follows:

Power absorbed by the auxiliaries 16 MW.

Net power to the grid 304 MW

Net return of plant 0.55

PCI natural gas = 11200 kcal / kg = 13kw/kg

With the assumptions of the thermal power demand to the steam generator will be:

P = 320-16 / 0.55 = 552 MW

The flue gas temperature, thanks to the heat exchangers with the combustion air, is approximately 77 oC.

The amount of natural gas (NG) to burn will be = 552000 / 13kw/kg h = 42.461kg / h.

(59,805 Nm3 / h). The amount of smoke produced according to experimental data, expressed in weight, obtained by burning a kg of fuel with the stoichiometric air in the absence of CO, taking into account the water produced by the oxidation of hydrogen, average moisture contained in the fuel, any ash or sediment and average moisture content in the air is estimated at 18.18 kg per kg of fuel which must be added a 5% excess air. Do not carry the calculation to emphasize the concepts. The total amount of smoke produced is kg 42,461 * 18.18 * 1.05 = 810,538 kg / h. The amount of water of condensation, from calculation not reported, is 13%, amounting to 105,370 L / h. The amount of CO2 produced, compared to the atomic weights is equal to 44/12 (3.66) kg CO2 per kg of carbon in methane gas mixture 12/16 (0.75). Therefore, the amount of CO2 produced is = 42,461 * 0.75 * 3.66 = 74,093 kg / h. Then the percentage of CO2 in the flue gas is about 9.14% (6% in volume). The production of CO2 annually will be (74,093 * 24 * 365/1000) = 586.816T.

Since the publication mentioned are some data:

The steam flow rate at the condenser inlet: about 619 355 kg / h;

-Enthalpy steam condenser inlet: 566.1 kcal / kg;

-Condenser outlet water temperature 45 ° C;

For simplicity of calculations, being the very large facility and therefore with great dispersions, suppose that the heat contributed by the fumes, go to compensate the dispersions and to maintain the water temperature at the entrance of the heat exchangers of the digesters to about 45 oC. So, starting from the heat of the steam to be disposed at the turbine outlet, the total heat exchanged will be:

Q = Port. Vap. * (Hv-hc) = 619.355 * 103 * (566,1-45) kcal / h = 322 745 890 kcal / h. Assuming a thermal cooling water in the digesters of 8 or C the flow of water P = Q / T = 322 745 890/8 = 40,432,236 L / h.

To size a system of global depurcogeproduction Pool (DCPTCG) is required from sources of heat to be recovered, which in our case are 322 745 890 kcal / h contained in the cooling waters discharged from CTE, which will be used to heat the digesters biomass energy (dg) and the residual heat sections smpcv (mechanized production greenhouses covered vertical) of the buildings Serra. For the calculation we consider only the heating of the digester. We can consider that the heat transfer inside the digester is between a between a moving fluid and one stagnant. We can use the following expression: A = Q * [ln (T1-t) – ln (T2-t)] / k * (T1-T2), where “T” is the temperature of the heating water (45-37) and “t” the water temperatures in the digester (35), K is the transmission coefficient of water / water, through walls of steel = 280; Then A = 322,745,890 * 1.38 / (280 * 8) = 198,834. m2. Using for the tube bundle of the heat exchanger tubes in stainless steel of the outer diameter of 114 mm, with the outer surface of 0.3876 m2, require 512,988 m of tubes (198,834 / 0.3876), which divide into 20 digesters with , on average, 25,650 m of tubes, divided into bundles of 36 tubes, the average development of 712 m before exit from the section. In each tube circulate the flow rate of 56,000 L / h [40432236 / (20 *

36)]. The tube bundle cross with a round-trip digester linear length of about 300 m. but it will not stop, continue along the path going up and evenly distributed, the sections SMPCV of manufactured gases (FSV) yielding the residual heat to them, both in summer and in winter, and ending in the troughs of the path or (vs) provided to feed the veils of water from the thirteenth floor of the section SCMCV

Even the 810,538 kg / h of flue gases will have their importance, as anticipated, rather than go out into the atmosphere after passing through the chimney RDF feed a covered canal horizontal (CACF), which also carries the underside of the hot water. Approximately n. 40 centrifugal fans (evf) held in the channel feeding depression with the fumes of the 20 sections (scmcv). In fact, the plant that will come out will be divided into 20 sections exactly alike, each consisting of: “Digesters dehydrators composters linear” (DDCL), gas tanks, “biological ponds and limestone covered mechanized vertical” (SCMCV), “greenhouses mechanized production covered vertical “(SMPCV) and” biological ponds covered optional vertical “(SBFSCV) The functions of these components have already been described in the previous section. Starting from the thermal power plant, leaving losing electricity, that we are not interested from the point of view of resource recovery, we will have:

Catchment warm waters and covered channel for hot water and fumes

As anticipated, the hot water that comes out from the heat exchanger of the condenser end of the thermoelectric plant is discharged in a dry dock (brac), together with the cooling water of the fumes. From this basin the water passes in a covered channel which will also serve for the transport of the

fumes (CACF), so that the fumes still with a temperature higher than that of water, contribute to conserve the heat of the same, while continuing cooling phase started in the chimney (CRD). The channel of total length of about 2,200 m, will be continuously depressed by taps smoke extraction (at least two for each greenhouse SCMCV), equipped with centrifugal fans with variable speed (evf), controlled by inverter, as many environmental variables involved in the regulation of the plant. The fumes extracted will be placed in greenhouses mechanized limestone (SCMCV) where they will definitely cool and help to erode the rocks, going up very slowly, driven by the pressure of the fans, as the hot water will be sucked in by pumps that feed the individual bundles of tubes that will heat the digesters before the linear (DDCL). and then the environments of production greenhouses and biological ponds (SMPCV + SBFSCV), until you reach the trays overflow (vas).

The recovery of CO2 and the heat of the fumes.

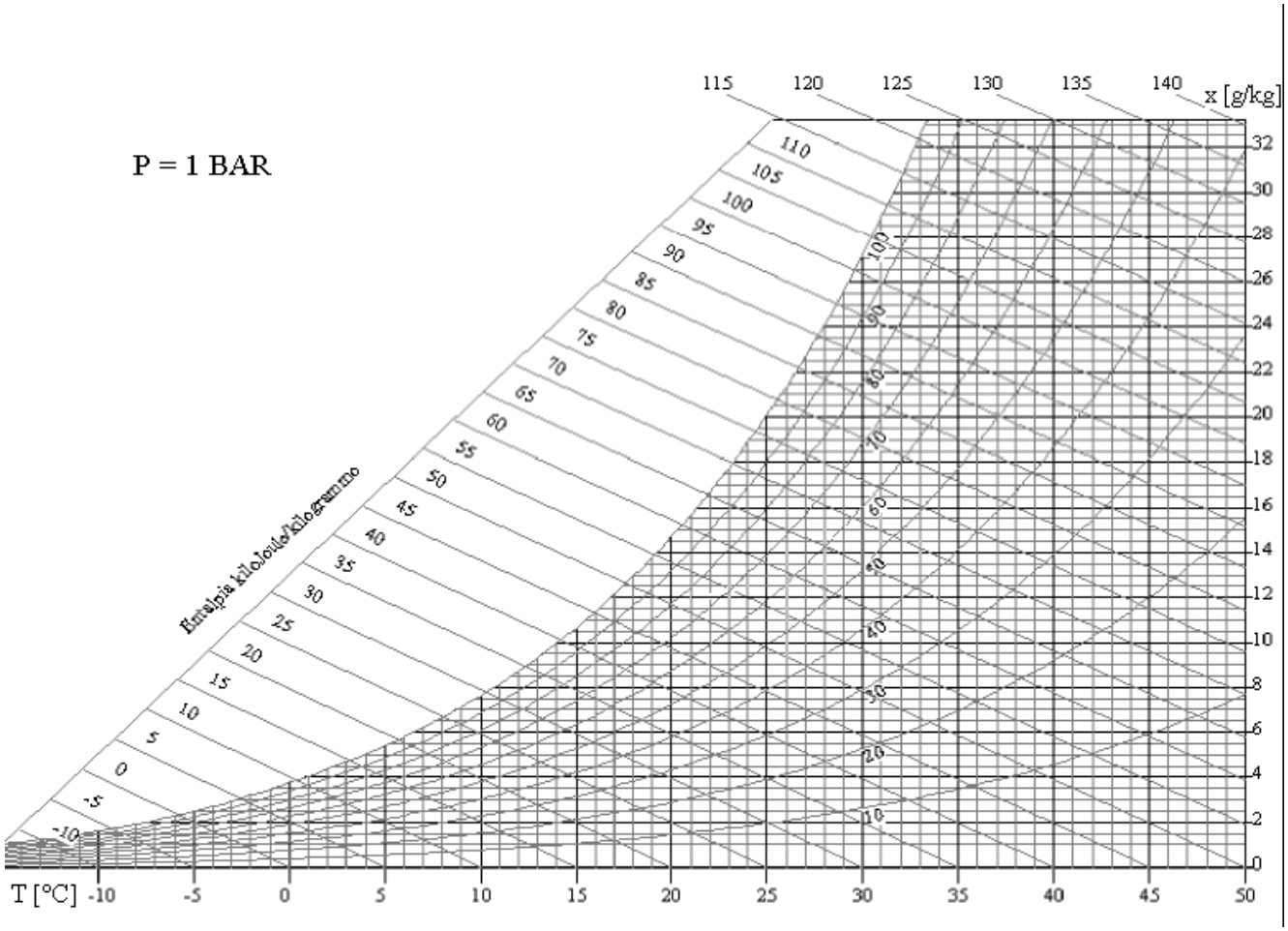
As anticipated, the exit of a modern thermal power plant, with a combined cycle and heat exchangers of the fumes with the combustion air, the potential of 320 MWh, we have an amount of fumes of 810 538 kg / h at a temperature of about 77 oC. with a CO2 content of 74,093 kg / h and a rate of 9.14%. The system described below does not change with flue gas temperatures higher than those assumed, being able to cool the flue gas downstream of the chimney, recovering useful heat. The power plants have developed good systems of filtration and removal of pollutants in the flue gases (CO, SOx, NOx, dust, particulate matter), with the exception of CO2, which needs more space and time to treatment in order to be neutralized . But the word offset is not exact, we should say “used”. This is the reason for starting which were matched purifiers covered with thermal power stations. But this solution leads

to a revolution of energy facilities and environmental protection: even the smokestacks have been changed by inserting an additional electrostatic filtration to that inside the control panel; covered purifiers have become “manufactured synergistic vertical” FSV, with SCMCV + S.B.F.S.C.V. + S.M.P.C.V.. The production of biomass with the level of filtration achieved will also have a food use. In the chapter relating to the modification of the chimney we’ve seen that we can make a first cooling of the flue gas outlet of the chimney, without creating condensation problems in the heat exchangers of the CTE, creating a cavity outside the chimney with a heat exchanger convogliandovi heat and the hot fumes mixed with atmospheric air to feed the greenhouse SCMCV. The cooling we will do it in two steps. The second phase will take place directly in the greenhouse SCMCV: with a shower of water, and mixing with other air fumes. The calculations of the flow of water and air are not complicated but very variable depending on weather conditions, it is not appropriate to deal with all the details at this stage, considering that modern technology will allow us to manage the entire system via computer, detection probes thermo hygrometric conditions, electric fans and electric water pumping at variable speed, controlled by inverter. Suppose that, in summer, between the first and the second stage of cooling the fumes blend it with a flow of fresh air of about 3,500,000 kg / h. The result set for the thermo hygrometric internal medium to emissions would be 30 ° C with 100% humidity (bearing in mind that this temperature will also depend on the availability of cooling water). In these conditions, we would have a difference of enthalpy (J) of about 23.7 kcal / kg and a quantity of heat to be extracted from the greenhouse of 102 158 850 Kcal / h. (4310500 * 23.7) through the air and the water coming out from the plant. Moreover, we have 76,158 kg of CO2 / h (74,093 + 3500.000 * 0.059 wt%) as to absorb to the limestone of the greenhouse SCMCV and photosynthesis in greenhouses S.B.F.C.V. + S.M.P.C.V.

$$d_{fumi} = d_0 \frac{273}{273 + T}$$

The greater or lesser amount to be absorbed by limestone cliffs, will depend on the demand of the system climate of greenhouses SMPCV, accessible to man, where the concentration of CO2 (and other gases) will be inspected probes. If these areas will be in a period of low consumption of CO2 (seeding, tillage, crop) does not subtract from the air and CO2 greenhouses, the concentration of CO2 in the environment SCMCV increase significantly as the top vents will come mainly steam and air. In this case we can entrust the entire process of absorption of the CO2 to the greenhouse limestone, allowing the increase of the temperature and concentration in our pleasure. The greater weight of CO2 it will increase the concentration favoring the absorption by the calcareous rocks. But suppose the production greenhouses in full swing. The average concentration of departure will be that the mixed air in the greenhouse SCMCV For reference, we consider that the air sucked from SBFSCV + SMPCV has the average CO2 concentration: 1.76% [(76,158 / 4,310,500) * 100] (1.14% in volume), which will be further diluted with the air ventilation of the greenhouse. This air at atmospheric pressure at sea level and has a density of 1,165 kg / m3 therefore occupies an area of □□5,021,732 m3 (4,310,500 * 1,165). I could do this reasoning, having given that the smoke does not come out of the chimneys, but they will come in the atmosphere passing through the limestone rocks that will be suspended for hanging baskets greenhouses, while these will be invested by artificial rain. Having also determined that the general structure will be divided into 20 separate bodies, in every body will have a volume of air mixed to approximately 30 oC. of about 251,086 m3 / h of air (5,021,732 / 20). Moreover, having fixed the length of the greenhouse of 300 m (influenced by the length of the digesters DDCL) establish an approximate volume of about 400,000 m3. At this central body that I called

SCMCV (Greenhouse covered limestone mechanized vertical), we need to combine the two sides of the SBFCV + SMPCV, that will be contained in the same environment. Overall, we’re going to occupy a further 300,000 m3 per side. The total size of each of the twenty buildings synergistic vertical (FSV), including service zones front and rear, will be about length 350, width 50 (15 + 20 + 15), height 70 m, divided into thirteen floors, of which the area SCMCV will only pillars and beams, without slabs. As anticipated, this section, as well as work by mixing air also works as a tower of evaporation for cooling water and air, as well as corrosion chamber of the rocks for about CO2. Let the water run from the top along the hanging baskets, in addition to enriching the same as carbonates, we bring the environment under conditions of water vapor saturation, which is similar in the central area, a real rain (area of □□the baskets with rocks) . The relative air humidity is 100%. Under these conditions, any change in temperature is immediately offset by the behavior of water. If the temperature decreases, part of the steam is condensed, producing the latent heat of vaporization, which immediately goes to heat the room. If the temperature increases, the water vaporizes going to cool the environment. All transformations will take place along the saturation curve of the Mollier diagram, from which is derived the psychrometric chart which shows the portion relating to the case of environmental conditions affected the life of man.



The air will enter the F.S.V. can only exit freely from the roof of the building, through gravity shutters (which prevent the entry of air from above). The greenhouses S.B.F.S.C.V. + SMPCV, could only expel air through the greenhouse SCMCV Being able to be fed, one-way, with clean air and outdoor air coming from SCMCV, will always have a higher air pressure to SCMCV On the walls of separation between the two environments will be asked a number of Dampers, one-way, which will return the excess air in the environment always SCMCV contributing to the cooling of the fumes.

In section S.C.M.C.V. (20 * 300 * 70 m in height), CO2, being heavier than air stratificherà in low areas and will thicken on the moist surfaces of the rocks due to the higher specific pressure (read Dalton and Henry), therefore, the ‘ air coming out from the top will be very low in CO2 while the one that

will go toward the greenhouses SMPCV (12 * 300 * 5 m in height) + S.B.F.C.V. (3 * 300 * 5 m high), it will have a residual, starting from the average percentage of mixing of 1, 76% deducted from the proportion absorbed by the limestone rocks. Taking into account that in these greenhouses the percentage of CO2 will be diluted further with other ventilation air drawn from outside, in order to have the optimal climatic conditions, floor by floor, according to the cultivation practiced. We can not determine in advance how much of 76,158 kg / h of CO2 will be absorbed by greenhouse cultivation, but even if they themselves had the potential to absorb all the CO2 produced, there being periods of low absorption (planting, harvesting, tillage) , greenhouses containing the limestone must have the full potential of absorption. Obviously, during periods of lower absorption by the production greenhouses greenhouses SCMCV can work with air temperatures and CO2 concentrations maximum while still providing the entire absorption of CO2 and increasing the hydraulic flow of water. For the economy of management will be to cultivate the same crop in all sections SMPCV the building F.S.V. so as to match the periods of low absorption of CO2 on all planes of cultivation and can freely increase the temperature and the concentrations of CO2 in the section SCMCV. In greenhouses SMPCV, however, the percentage of CO2 should be kept under control by sensors placed in the environment that interrupt the intake of air from the greenhouse SCMCV so that it is not dangerous to human presence. This is nothing new as these safety features are already implemented in the agricultural greenhouses that use the carbon dioxide fertilization. The limits set by OSHA, the U.S. agency for safety in the workplace for the concentration of carbon dioxide in the workplace are 0.5% (5000 ppm, 9000 mg / m³ TLV-TWA) for a ‘ Continuous exposure. The TLV-STEL (Threshold Limit Values □□- Short Term Exposure Limit) or TLV limit with short exposure time, is equal to 3%. Currently farms already operating above ground can not take advantage of either heat recovery or recovery of CO2, or the recovery of

the compost produced by DDCL or greenhouses on several floors, or the recovery of irrigation water purified in parallel biological ponds, or the modernization of processing and transport allowed by motor vehicles.

In greenhouses the limiting factor in photosynthesis is the concentration of CO2. In a greenhouse of the modern type, in the absence of adequate ventilation (especially in the autumn-winter period) within a few hours of exposure to light the CO2 concentration can reach 120-150 ppm against 390 ppm in the atmosphere. At these values □□of concentration is reduced to a minimum photosynthesis with consequent arrest of the synthesis reaction of sugars by plants. For this reason it is necessary to increase the concentration of CO2 compared with that present in the atmosphere. The optimum value determined by practical applications is around 1000 ppm by volume (1500 ppm by weight). In traditional greenhouses with plastic covers, in summer increases the air circulation until you get to 40 – 50 times for spare parts to increase the concentration of CO2 and cool the environment, while in our case, just 1 spare time mixed with air stemming from the greenhouse SCMCV.

In greenhouses the traditional problem of the so-called carbon fertilization atmosphere arises mainly in winter, when it is necessary to retain heat and therefore the ventilation openings must necessarily be closed. In our case the problem does not exist because we take from the greenhouse adjacent to both the CO2 and heat. Agricultural production off the ground, as anticipated, is playing an important role and buildings synergistic vertical (FSV) may play an important role too far from thermal power stations to solve environmental problems, food, and save water resources, since as mentioned above the ‘ water would be continuously recycled and purified through SBFSCV. To strengthen the argument that CO2 must be used by man, not buried, I quote the two systems used by farmers to

enrich the environment of CO2:

1) through the release of carbon dioxide produced directly in the company (with burners placed directly inside the greenhouse or in centralized boilers.) In practice, the CO2 is a byproduct of heating. According to the article "http://edepot.wur.nl/23366" using boilers operating with methane gas, which, combined with a condenser of the fumes, fail to recover the CO2 at the same time eliminating much of the water vapor produced with combustion and increasing the efficiency of the heating system. The flow is controlled so as to ensure concentrations around 1,000 vpm a closed greenhouse, which descend to the approximately 380-400 vpm (similar to the external concentration) with the windows fully open. The carbon dioxide is pushed through a ventilator in the distribution lines present below the pallets. From the combustion of a m3 of methane gas are obtained 1.84 kg of carbon dioxide and 1.31 kg of water. In the Netherlands the average rate of supply of CO2 is 18 g/m2/ora, representing a natural gas consumption of 100 m3/ha/ora. The CO2 obtained as a byproduct of heating at a cost ranging between 130 and 150 € / t.

2) THE CO2 can be purchased externally in liquid form. According to the article "http://edepot.wur.nl/23366": is transported via slurry in the company, where it is stored in containers from 2 to 5 depending on the surface ta company concerned. Through an evaporator, is gasification and subsequently, to avoid condensation phenomena along the distribution lines, it provides to its heating to room temperature. A control panel, depending on the concentration of CO2 detected by a sensor located in each sector and to its respective set-point concentration, rule, through a system of valves and flow meters, the placing of the CO2 in the greenhouse. The distribution on the inside is then carried

through pipes of low density polyethylene with holes of a diameter of 0.8-1 mm, placed at a variable distance from 1 but 50 cm in order to make uniform the flow of gas along the line . The convenience to the use of liquid CO2 in greenhouses it has higher dimensions hectare: in fact, in the case of a greenhouse of dimensions of 0.5 has the increase in production has a value almost equal to the total cost of fertilization (0, 25 € / m2 * month). By combining the cultivation of agricultural greenhouses to a facility DCPTCG the costs of summer ventilation would be almost zero and also those of carbon fertilization. Environmental management S.C.M.C.V. may be made at the central level and will be very similar between summer and winter. Vary only the number of fans operating to reach the average temperature that could be the same in summer and winter, the 30 oC with 100% rh with the only variations due to the greater heat loss in winter, which would be adjusted further in greenhouses SMPCV in function of the other factors involved (external temperature, dispersions, type of cultivation). Realizing the T-Duct with the fan air inlet at the center and two air intakes respectively coming from the outside and from the greenhouse SCMCV, equipped with a droplet separator, automatic control damper, air filters, heating coil (or reheat) in the greenhouse SMPCV you can get acceptable conditions of temperature and humidity in summer and winter without excessive costs, adjusting the air mixing with the dampers and the speed of the electric fan. The computerized management determines the temperature and humidity conditions of the environment. We can say, for example, that in greenhouses SMPCV + SBFCV in the total volume of 600,000 m3 can mix every hour in summer 300,000 m3 / h Jx 23.7 kcal / kg (30 oC with 100% rh 99.16 kJ / kg) with 300,000 m3 / h Jx 15.3 kcal / kg (26 oC, 70% rh with 64.01 kJ / kg), referring to the diagram we have the air coming out of approximately 27.7 ° C with 85% humidity that we can correct further by inserting a condensing coil, to reduce the degree of humidity of the air, fed by a heat pump with fan unit placed outside of the building. In winter, having, for instance, 300,000 m3 / h Jx

0.67 kcal / kg (0 oC, with 30% rh 2.81 Kj / kg) can not mix it directly with that coming from the SCMCV going over the saturation curve, we must first heat the outside air to approximately 15 oC, and then mix it, obtaining an air output of about 26 oC with about 85% humidity. Even in this case to reduce the moisture can enter a battery of post heating or condensing heat pump.

We must not forget that for the D.C.P.T.C.G. matched to the C.T.E. from 320 MWh, for each of the 20 sectors, we have the output of the tube bundles of the digesters linear approximately 2,021,000 L / h of water at a temperature of about 37 oC (40.432.236/20) that can circulate in the environment of production greenhouses to mitigate the winter weather, or subtract moisture, while the veils of water to raise the greenhouse SCMCV To maintain this temperature the water also contributes to the heat coming from the heat exchanger used for cooling the flue of the chimney, not considered in the calculation of heating the digesters [which equally do not consider in this stage, recalling that the fumes to lower the temperature about fifty oC must be disposed between water and air, a total of approximately 40,526,900 kJ / h (810,538 kg / h * 50 oC) = 9,726,456 kcal / h]. The bulk is disposed of through the mixing of the air, the more water that participates in the heating greenhouses]. If this water at the end of the trail arrives at a temperature of 30 oC, remaining above the wet bulb temperature of draws moisture from the environment while increasing the temperature slightly. The overall heat recovery due to this water is about 288,800 kcal / h (2,021,000 / 7). Only the passage of this water in the environment results in a temperature drop of the temperature sensitivity of 2.0 ° C (288.800/0.24 * 600,000) this small temperature difference would replace the battery re-heat in the summer bringing the temperature back to 30 oC but with 75% of moisture, instead of 85%. Many cultures, especially energy, are compatible with these conditions thermo

hygrometric obtained with acceptable deviations with very low energy consumption, throughout the year which, after all, could be fully automated. The following table shows the temperatures and relative humidity conditions optimal for some crops:

Temperature: Lattuga14-18 ° C; Spinaci15-18 ° C; Peas 16-20 ° C; Bietole18-22 ° C; Celery 18-25 ° C; Fagioli18-30 ° C; Pomodori20 Peperone20-24 ° C-25 ° C ; Cetriolo20-25 ° C; Melanzana22-27 ° C; Anguria23-28 ° C; Melone25-30 ° C; Zucchine25-35 ° C; cereals 24-30 ° C.

Humidity: Tomato and peperone50-60%; Melanzana50-60%; Melon and chard 60-70%, 60-75% Beans, Lettuce 60-80%; Watermelon 65-75%, 65-75% Peas, Zucchini and celery 65 -80%; Fragole70-80%; Cetriolo70-90%; cereals 65-80%.

With or without depurcogeproduction global thermalcovered (DCPTCG), the buildings synergistic vertical would have already had to replace the existing treatment plants for many reasons. Just think about the water savings that would allow recovering and recycling the water without polluting the water. In the absence of a C.T.E. nearby, these greenhouses can complement any heating system, subject, change the chimney. In the absence of thermal plants, carbon dioxide may be used for fertilization urban pollution (v.cap.32) and in the absence of this can aspirate the CO2 directly from the atmosphere, as the common production greenhouses, with the advantage of recovering and also purify irrigation water, nitrates and phosphorus dragged drains. Other than artificial trees and natural. In the winter, not having C.T.E. and thermal plants, you can use the thermal units of heat generators mounted on self-propelled mobile distribuirebbero that heat more evenly and without CO2 pipelines and

uncluttered fixed. The same self-propelled barges that changing the equipment, would be used for the automation of tillage, planting and harvest. We must not snub these solutions in view of the growth of the world population (V.cap.6). We must not snub the job opportunities that would create all industrial activities to achieve the new machines required for tillage reported, cooling and ventilation of the rooms, the industrial automation, infrastructure construction and the arrangement of hydraulic works.

We can not imagine any other policy of territorial waters. In some areas, such as Puglia, the wells to irrigate the fields exceed the depth of 300 m. For how long can last a policy with no accumulation of rainwater and desalinizzazioni of large amounts of water that only equipment DCPTCG, will allow?

The flow patterns shown in the drawings in Chapters 29 and 31, is a plant structurally identical. You can make the difference between a system that purifies the water and desalination, and another that also includes terrestrial biomass production, putting in place of water in about three quarters of the sun sections (sbfscv) of topsoil and compost with technique used for the construction of roof gardens (placing the soil in crawl spaces of plastic material covered by non-woven filter), transforming those sections in greenhouses mechanized production covered vertical (smpcv). This version is the one used in DCPTCG, being reserved, in particular, the very large systems combined with the large thermal power plants that would allow large-scale production of biomass for energy throughout the year at low cost thanks to the heat recovered from the same thermal power plants, as described above, talking about the air conditioning.

The cultivation out of the ground, in greenhouses vertical,

could have immense developments and allow to multiply the areas cultivated with a productivity already experienced more than 40%, in the case proposed, indeed, there would be the advantage of the recovery and the immediate water purification drain. However, being fairly well known and obvious usefulness of agricultural greenhouses, particularly describe the management of water in vertical, less obvious and unknown. This will allow the removal of existing waste treatment plants that immense energy resources purifying water from the sewage system more degenerate than by organic loads. These emit additional CO2 produced by the oxidation tanks in the open. It is reported in parentheses to the formula that transforms organic matter oxidation to CO2 ($C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6 H_2O$ + about 38 ATP molecules), which is inverse to that of photosynthesis [(6 CO_2 + 6 H_2O + 2872144, 8 (j / mole) → $C_6H_{12}O_6$) + 6 O_2; 2872144.8 (j / mole) = 686 (kcal / mole)]. Since the current purifiers based on the first trial, without being able to recover the CO2 emitted and being the FSV based on the second process, are poles apart conceptually. The first, consume energy and emit CO2 while the latter produce biomass to produce energy and absorb CO2.

But the buildings emissions are not limited to photosynthesis applied on dozens of overlapping planes and CO2 enriched environments, which multiplies the yield on two fronts. Also practice the oxidation in greenhouses limestone adjacent to those photos synthetic, where the process takes place, not by simple mechanical agitation of the water which favors the contact with oxygen, and then the process summarized in the above formula. The same agitation and then oxidation, in greenhouses, is achieved by raising the waters covered in the rich CO2 and saturated with limestone rocks. The water falling from the top are forced to be enriched with calcium and magnesium ions becoming alkaline and therefore, even in this case, yields add up and we can get, with lower operating costs, treated water and alkalized, in very large quantities,

which we never had. Moreover, thanking, the CO2 that our State Authorities, are doing everything possible to bury deep in the Earth, with high risk, in the event of accidental releases and off with high costs, we will charge and with the blessing of the IPCC (Intergovernment Panel Climate Change) which lost credibility for the support given to this solution.

But the greenhouse buildings are not intended to be only of water and air purifiers, which will arrive in an urban context within itself through a different sewer system described in (cap.32). They will also be a great system of environmental prevention accumulating vertically while purifying the water, keeping clean and dry drains and small streams of water, so preventing flooding, while the current sversano water purifiers degenerate with the advent of the first rains, not having the ability to treat or store it where. The current purifiers, having hurry to treat water that deal can not take into account the fact that the oceans are becoming more acidic. Can not alkalize the water for reasons of cost and also because it should use the calcium oxide, which leads to produce CO2 emissions. The current treatment plants must be out of town because treating sewage and septic high organic emit odors. The F.S.V. having also purify the air must stay in the city and diluting the organic loads in large bodies of water do not produce bad odors. Having no hurry to return the water can alkalize the environment without the use of calcium oxide and then allow other without CO2 emissions. But there are also extra-urban contexts that have never been dealt with in the right way as the treatment of sewage, agricultural stormwater and desalination of brackish water and marine only with the FSF can be addressed. We need to see these plants as water purifiers agricultural, always to blame for the pollution they produce on the slopes and water bodies. The current purification systems are powerless in the face of large flows that should be involved. While F.S.V. they would naturally accumulating water reserves out of the path of the

water to prevent natural disasters and flooding needs in times of drought. Would not it be better to irrigate with, at least, a part of mineralized and alkaline water and acidic than pure rainwater? But if we look at the various flow patterns, from FSV we can draw from the demineralised water (sbffcv) and alkaline waters from reservoirs (braa) since the waters, continuously recirculated to consume CO2, are being depleted of salts during the ascent through the greenhouses of production (land and water), and are enriched the same during the descent through the greenhouses limestone. Is for us to intensify or reduce the treatment uphill or downhill intensifying or reducing the plant available depending on the quality and quantity of the water that we will have.

If we consider that in plants D.C.P.T.C.G. agrees develop these manufactured in length to absorb more quickly the costs of the handling system of the baskets limestone, and any ion exchange resins, When there is no organic loads and CO2 to neutralize, but only water from accumulating, we might think, even, of develop these buildings, in the basic version, such as water storage and alkalizers, which exploit only the photosynthesis (without greenhouses limestone). These could be miles long, for example, under the viaduct, with the triple function of purifiers low loads of water, agricultural water supplies accumulators and producers of biomass energy. I'm too simplistic artificial reservoirs that do not allow the circulation of the accumulated water or sludge extraction. By the time they are intended to create acidification and eutrophication. With F.S.V. which increase the ratio of surface area exposed to light and accumulated volumes that allow the evacuation of sludge, the water alcalinizzeranno in stead of acidify. Will not make sense large and small basins, which do not bring great benefits to the environment and prevention have become a danger, when found filled by torrential rains.

But the largest benefits were in the cities. How would they escape the wet treatment the unfortunate dust thick and thin, SOx, NOx, CO, CO2, which escaped from the ski transport, industrial production and heat would be captured by the sewer system designed with security policies globally? There would be no need to invoke the wind and rain to save us from air pollution, as we do now, hoping that the smog going to create problems somewhere else, with acid rain, melting glaciers, acidification of water bodies and the sea. This is the current situation. What do they talk at summits and world if my proposal for purification of the global city is already two years old without anyone wanted to talk about? In the face of the fight against the global warming world leaders who want to make the environment. I do not want to admit that they were wrong also how to build cities, at least the more modern neighborhoods, and would be remedied by artificial trees to make some more favor to multinational companies. This is because the design does not exist public either in Italy or elsewhere. Politicians have released a blank proxy for manufacturers of machines for the environment and local small design studios that can only copy the mistakes of the past with the most modern machines, without changing the system that is wrong in the foundations.

But the synergistic vertical buildings are not intended to be only of water and air purifiers, which in an urban context, they can get at home, and through the combination with a heating system, either through a different sewer system. They will also be a great system of environmental prevention: accumulating vertically, out of the ordinary flow, the waters while you purify, alkalize or desalinate it, keeping clean and dry sewers and water, thereby preventing flooding. The current sversano water purifiers degenerate with the advent of the first rains, not having the ability to treat or spaces to store it. The current purifiers, can not alkalize the water for reasons of cost, volume and available treatment times.

Moreover, why should they use to produce calcium oxide that results in emissions of CO2 [(CaCO3 + heat (~ 875 ° C) = CaO + CO2]. Too installations producing lime are among the facilities to be combined with FSV to recover CO2 and heat. purifiers current must be out of town because treating sewage and septic high organic emit odors. FSV I also wanting to purify the air must stay in the city. Reducing the paths and degeneration sewers and diluting the organic loads in large bodies of water do not produce bad odors. did not immediately restoring the water environment, to form the precious water reserves, the can alkalize without using calcium oxide and then allow other without CO2 emissions. But there are extra urban contexts that have never been dealt with in the right way as the treatment of sewage, agricultural stormwater and desalination of brackish water and marine (many power plants use this water for cooling turbine heat exchangers) that only with the FSF can be addressed in a sustainable manner.

Buildings synergistic vertical (F.S.V.)

Returning to the system DCPTCG: we are sizing while the foregoing description, having established, based on the amount of hot water available, to realize n. 20 buildings DDCL, we support the same 20 buildings synergistic vertical (FSV), containing: the center is the “biological Pond covered with limestone warehouse vertical” and the sides the “biological pond next optional indoor vertical + the” greenhouse mechanized production covered vertical “(SMPCV + SBFSCV SCMCV + + + SBFSCV SMPCV). As we see the SMPCV, standing outside the building, can be transferred, by means of a pneumatic transport, their cereal production, chopped and sucked, directly during harvest, the silos that feed the digesters.

In 20 sections of “biological ponds covered with limestone

warehouse vertical” (SCMCV) of covered lagoons (braa) will arrive cold water from the main channel power and the water that falls from the trays (vas) which are fed by tube bundles heating DDCL from the treated water (sbffcv) and from the same waters of the basin (braa) refitting, as well as any rainwater collected from the roof of the roof of the building. In the greenhouse S.C.M.C.V. will be placed on the hot exhaust gases from the flue gas channel (CACF), which are cooled by mixing with cold air and the water veils: The flow of water raised, will be approximately as follows.

a) water taken from the central area of □□the basins approximately 240,000,000. L / h divided into 20 S.C.M.C.V.

b) Water heating the digesters (dg) and vertical greenhouses (SMPCV) For the central approximately 40,432,236 MWh from 320 L / h divided into n. 20 S.M.P.C.V.

c) water overflow (purified from the passages in succession through ponds biological optional), which protrudes from the upper floor SBFFCV depends on the load of the system and the amount of water drawn, destined for other uses.

d) rainwater collected from the roof of F.S.V:

SCMCV environment, the air will become increasingly rich in CO2, which is the heaviest of the gas. can be absorbed by the contact surface of the rocks and the surface of the waters. These surfaces are multiplied by the rock crushing and the overlapping of water basins. In addition, the absorption is multiplied further by the increased specific pressure of the gas, according to laws of Dalton and Henry, as already

mentioned in the previous report.

The four types of water, abcd, feed the channels with infinity edges of triangular profile placed longitudinally over the rows of hanging baskets containing the limestone rocks. The water falling from above will complete its cooling and contribute to the cooling of the flue gas. Drag into the basin below the residual heat and calcium ions removed from the limestone, along with the CO2 dissolved in drops of water. The lighter gases in the atmosphere will come out through the vents located at the top. This will be possible thanks to the high concentration of CO2 content in the flue gases and the low salinity of the water, supposed fluvial origin of rainwater, purified and desalted by (sbfscv).

For example, in the section S.C.M.C.V. the building F.S.V. we have n. 16 files, 272 lines spaced 1.1 m, over 24 floors, of baskets, each containing, on average, 0.7 m3di rock. Estimating the weight of rock of 0.5 T / basket will have a total of 52,224 T. rock; assuming an extraction efficiency of 70% CaO, we could pull out 36,556 T of Cao. Whereas in each F.S.V. we pass 3,700 t / h of CO2 (74,093 / 20) and in a year 32,412 T / year (3.7 * 365 * 24), and considering the relationship between the molar weights 56/44 = 1.27, we could say that consuming all the rocks in a year we would have absorbed almost the entire production of CO2, as the ratio 36,556 / 32,412 = 1,127. To keep up to the exchange surface we can integrate the rocks consumed every two or three months, in function of the experimental tests, decreasing or intensifying the integration based on the results obtained. But also considering the absorption that we through photosynthesis aquatic and terrestrial, experimentation must be complete also for deciding which of these systems increase more in function of economy and environmental utility, which can vary from one area to another of the planet. Because the system is very

flexible, we can not say a priori how much CO2 subtract through the carbonation of rocks in cold, for the moment, just for sizing, we simplify the operation assuming that you have a contact surface and environmental conditions equivalent to ‘commercial use of calcium oxide CaO.

To neutralize the 74,093 kg / h, CO2 contained in the flue gas flow rate (810 538 kg / h), it takes about 94 098 kg / h of calcium oxide (74,093 * 56/44) according to the molar ratios of the weights. Assuming an average of administering 400 mg / L of calcium, will use at least 240,000,000 L / h of water to dissolve the lime (94,098 * 106/400). Obviously, the flow of water that will pass in the covered dock will be much higher or much lower depending on the water availability of the basin near the plant. The important thing is to lift trays of infinity (vas) the quantity of fresh water required, even recycling the same water several times through the biological ponds following optional vertical (sbsfcv) (aided by the use of baskets containing ion exchange resins to increase ability of water softening) and greenhouses limestone (scmcv). In shortage of water, to increase the purifying capacity of water recycled, can be eliminated sections (smpcv) expanding those (sbfscv), also the twenty sections of the basins (braa) instead of being connected in parallel are connected in series, increasing the pH of the basins at each step up to the precipitation of calcium carbonate in the last reservoir with a pH around 9.6, and the consequent rapid softening of the water. At this point s’invertirà the feed stream of the basins, after extraction of the precipitated calcium carbonate. The waters that come forth from the ski will be taken only by the central basins that will never reach the extreme conditions of pH, but will be enough to carry alkalized carbonate reservoirs in the valley. However, the more water will pass through the plant, the higher the purification and alkalinization of the water bodies of destination. So, in each basin S.C.M.C.V. you will have a

significant slowdown in the flow of water toward the sea so that they can cool down and absorb carbonates, consume nutrients, it being understood that the main branch of the river, will always be available for exceptional floods. For this great involvement of the water is difficult, you can achieve great power concentrated in one place. Assuming that the three types of waters mixing with air are able to break down the flue gas temperature to about 30oC, we can transfer the mixture of air, still rich in CO2 in the adjacent sections, where it will continue the consumption of CO2 producing biomass terrestrial and aquatic by means of photosynthesis. The “biological ponds covered the following optional vertical (SBFSCV) accompanied by the” mechanized production greenhouses covered vertical “(SMPCV) are made in the same environments to make better use of the space. Indeed, SBFSCV, will be positioned below the spaces of the walkable SMPCV and will be used as a service corridor, which will also be accessible valves and hydraulic tapping the various electro-mechanical equipment.

By special air intakes arranged, floor by floor, the wall of separation between SCMCV and F.S.V. the warm, moist air rich in CO2, from SCMCV it will spread in the common S.C.M.C.V. and S.B.F.S.C.V.

The water that feeds the ponds (brad) and SBFSCV will be mainly made up of the liquid digestate coming from DDCL, and water drainage of irrigation SMPCV, any sewage sewer. The sludge produced from these basins will be drawn up floor by floor, and raised from the hoppers of the tanks (DFT) that feed the DDCL or the trucks of transportation.

The equivalence between the organic carbon produced in a pond biological defined as TOC or COD and methane is given by its

complete oxidation reaction: CH4 + 2O2 → CO2 + 2H2O, from which it follows that one mole of methane consumed or you can considered equivalent to the removal of two moles of oxygen equal to 64 grams (32 +32). Thus, being the volume occupied, a fixed constant for the kinetic theory of gases, and in particular for Avogadro's law: 22.4 grams litri/64 = 0.35 L of methane at 0 ° C and 760 Torr (standard conditions) are equivalent to 1 gram of COD. Given that the process of recovery of this gas is spread by transferring the sludge produced in an anaerobic environment and is held in the field mesophilic around 35 ° C, one can also write the equivalence at this temperature: 1 kg of carbon produces 395 L of methane at 35 ° C and 1 atm. We can say that if you SBFCV produces an average of 10 t / ha of C * year, produces about 25,316 m3 / year of methane (10,000 / 0.395). Considering the lower calorific value of methane = 7.4 kW/m3 and an efficiency of conversion into methane will produce 149,870 0.8 Kw / ha * year (25,316 * 0.8 * 7.4). Burning methane in the CTE with a combined cycle performance and 0.55, we will produce approximately 82,428 kW / ha * year.

If, instead, we consider the energy crops in the field which have a average production capacity of about 47 T / ha, we can estimate that cultivated in a greenhouse increases of 30% and 61 becomes T / ha. Notwithstanding, the specific capacity of 389 m3 biogas / T biogas, each hectare cultivated in greenhouses, combined with a CTE with combined cycle can produce approximately 87,441 kW / year (61 * 389 * 0.55 * 6.7). As you can see these productions very intensive approach such as performance and are possible because of the strong presence of nutrients in the liquid digestate transferred from DDCL ponds and production greenhouses, and also from carbon fertilization due to the presence of CO2 in the air But in buildings greenhouse production can be multiplied over several floors. In our case, we considered necessary 12 floors plus the final plan sbffcv (the ground floor was reserved for

maintenance on the racks, the racks sludge thickening, etc.). Excluding also the central space, occupied by the greenhouse limestone, we can estimate a cultivated area of about 234 acres (30 * 300 * 13 * 20 / 10,000) and a single rounded prudenzaialmente in production to 80,000 Kw / ha * year for a total production of 18.72 million KW / year (234 * 80,000). Processed in output per hour are 2,363 kW / h (18,720,000 / 330/24). Translated into only 2.36 MWh will be produced by thermal power plant of 304 examined. These are equivalent to 181 kg / h of methane (2.363/13). Since one mole of methane corresponds to one mole of CO2, we can say that through the production greenhouses or ponds biological optional subsequent subtract 181 Kg / h of CO2, by means of photosynthesis. Are very few compared to 74,093 kg / h of CO2 produced by the central. So, we can say that photosynthesis contributes little to the production of energy and subtract CO2. But our purpose is not to produce all the energy through biomass produced in the greenhouse buildings and even to clean, with photosynthesis all fumes of thermal plants by CO2. We can consider the energy production and the removal of CO2 as a gift of the chosen process. The real surprise comes from the energy less bulky buildings DDCL and the true ability to reduce the CO2 comes from the less bulky limestone SCMCV greenhouses. However, D.D.C.L. and S.C.M.C.V. could not function if they were not side by side with the purifying capacity of SBFSCV that as written in other sections will be helped by the use of ion exchange resins in baskets. The D.D.C.L. would have even the potential to completely replace fossil fuels with biogas original if they were fed with energy crops quality. But having to play, above all, a function of environmental protection should give priority to organic waste, so that, for strategic choices, not technical, they will produce less energy. Before you say that these MWh cost us too we have to ask how much it costs the purification but we do not protect the environment and how much would it cost to alkalinization of the water that we have never done and will continue to do, even if we use the CCS and artificial

trees. How much would the C.C.S. that would not recover even the heat.

The S.C.M.C.V. will not be accessible to man, while SMPCV and SBFSCV (with thermo hygrometric conditions and concentrations of CO2 acceptable) will be, and will also include piping and control equipment, which in this way will be made accessible. Contribute to the maintenance of optimal climatic conditions of the thermo SMPCV and SBFSCV, as well as air drawn from SCMCV even the air from the external environment and the waters, that shall come out of the tube bundles DDCL and C.R.D. still hot, that we will use for the third and the fourth time in this plant (40,432,236 L / h), which will raise the veils of water to cool the smoke of the section SCMCV, passing them to the greenhouse SBFSCV + S.M.P.C.V. which will contribute to heating or post-heating of the air. This water that we must necessarily raise to promote contact with the limestone, along the FSV through tube bundles suspended from the ceiling contribute to the climate of the environment. In the summer can also be used to power the system of irrigation of SMPCV In fact, if the water will be used for irrigation, will decrease the hydrostatic pressure of the circuit and this may be increased by electric lifting reserve, slaved to a pressure switch system with expansion tanks, mixing in piping, even cold water basin (braa). In fact, in the greenhouse there will be a continuous adiabatic heat exchange between air and water when you proceed irrigation. But even the surfaces of biological ponds will participate in the exchange of heat, summer and winter.

Speaking of “mechanized production greenhouses covered vertical” implies a new way of working the land “above ground” that does not exist today. In fact, it is unthinkable to air-condition and fertilize carbonicamente low-cost environments so great, nor use tractors and equipment that are used in the

open field. You have to think of the agricultural processing with the criteria of automation and transportation interiors industries. This represents huge opportunities for employment and development also in the field of industrial and electro.

Buildings digesters, dehydrators, composters linear (DDCL)

The global depurcogeproduction involves the production of huge masses of energy to digest, dehydrated compost. As always, the fact can be seen as a problem or as a resource. Of course, for myself, is another valuable resource, as already explained. The closure of the carbon cycle, we do not do that today, in addition to be made through alkalinization of water and photosynthesis, goes through this other way, which would result in huge cost savings, having all the characteristics of the compost to replace chemical fertilizers. The abundance of compost produced by this system universalized energy, saving water, the less use of groundwater, could lead to a redevelopment of the land in the process of desertification, transferring all compost will not be reused.

To produce the compost, we can not think of using current systems, born for the treatment of small quantities of sludge and after extended also to biomass. We can not continue to mix industrial and municipal sewage and sludge, select only a small part of the sludge, dehydrate mechanically, transferring them to other companies who work them and mix to turn them into compost. In this way, the compost is too expensive, almost like a chemical fertilizer. Increase the amount of biomass hundreds of times, involves the study of new processes and new solutions. DDCL from buildings, invented to be included in the process of DCPTCG, must leave the composted solid already bagged.

The starting point for the design of a DCPTCG is located in D.D.C.L. It can not be anything else, that the size of the tube bundle, which comes out from the recovery of the waste heat of the CTE examined. Around this tube, building the digester, then the rest of DDCL and after S.C.M.C.V. + S.M.P.C.V. + S.B.F.S.C.V. . Not surprisingly, for the installation of 320 MWh, this has already been dimensioned tube bundle length of about 513,000 m (excluding the next path that goes up the greenhouse buildings), which I felt should be divided into 20 digesters to contain them in a acceptable length of 300 m. The digesters that contain them, I called them linear and will be fed and evacuated through the hoppers of accumulation and amalgamation of incoming materials and outgoing. The following sections of dehydration and composting, designed with an extremely simple and compact, of course, to be developed, like all the rest of the system, of which I would speak only after they had been tried, if I had found the interlocutors willing to listen the concepts on which is based the overall purification:

Hoppers digester (tRCD) and feeding dehydration (DDCL)

These hoppers have an important function in the management of the entire system. They will have a truncated inverted trapezoidal shape, with a closing lid insulated double swing, a loading pipe central mixer with paddle vertical, a shredder with rotating reels final, an exhaust pipe with a slide valve; double connections for the loading the material to digest that will consist of:

– Liquids thickened sludge from the hopper (TRFA)

– Energy matrices from silos or mobile plant separation,

screening, shredding. The inlet hose will be mixed mud extracted from fresh basins (braa) (brad) tankers and ponds SBFSCV and biomass energy. But the area of □□the conical hopper will work with the reverse flow: will serve as an intermediate in the transfer phase reactor sludge dehydration and composting, which will take place with an aerobic system and therefore at this stage will use a ramp that starts blowing the 'sludge aeration. In fact, assuming the digestive cycle lasting fifteen days, we can use the hopper as an aerobic reactor for the same period, so that the digested sludge can be composted aerobically and dehydrated. When planting from 320 mah, each digester will be divided into eleven independent sections, each with a hopper that can hold all the digested sludge in the respective section. In the hopper the sludge is aerated by a flight powered by the air of un'elettrosoffiante (hex), waiting to be lifted to dehydration from the pump (psf).

If we extract every fifteen days, from digesters 8% of the total volume of 260,000 m3 in digestion, having hoppers are 220 of the same volume will be 94.5 m3 (260,000 * 0.08/220) that arotondiamo to 100 m3.

Digesters linear (D.D.C.L.)

Before describing this type of digester must start by saying that the state of the art, there are three types of digesters: Wet, Dry and Semi-dry, according to the degree of dilution of the refusal to swallow the water. The undersigned has taken into account only the first type (Wet = wet), with the maximum dilution in water, since the plant depurcoproduzione covered globally, based on systems with suspended mass. However, the linear digesters, are very different from other wet digesters. In these digesters the total solids content in TS is less than

10%, not being able to the dehydration system and composting matched afford higher concentrations. In the wet digesters, due to the physical characteristics of the treated waste, it is not usually possible to obtain a perfectly homogeneous mixture. Accumulations are found at the bottom of the reactor materials with high density and surface crusting due to floating materials. Moreover, it is frequently the short hydraulic circuit which occurs when the flow of the incoming material is mixed with the fluid already present in the reactor and flows out with retention times shorter than those of the project. In the digesters linear these negative phenomena, which are difficult to eliminate in the classical cylindrical digesters, are eliminated by providing a greater amount of loading stations and sludge extraction, independent. The mixing between, what goes in and what comes out, not the case, the existing separators in surface area and in the mud, interrupted only in the middle. According to the conception of the subscribed, the digester can be considered as a very long Imhoff tank, from which they take the name “linear”, equipped with trough-shaped in longitudinal succession, interspersed, the length of 30-40 m, not to mix the sludge heavier and surface barriers for not making the rooms adjoining the gas accumulation. In fact, the common area will be only the middle one, which produces the gas. Transversely the section may be full of baffles delimiting the zones of clarification, sedimentation and digestion to facilitate the intimate contact of the microorganisms, especially, in the digestion zone.

The overflow from the digesters touches the raceways and feeds the oxidation basin (brad) which in turn feeds the optional subsequent biological ponds covered vertical (sbfscv), of equal length and parallel to the digesters. The sludge produced from reservoirs (brad), (braa), ponds (sbfscv), are all relieved to thickening tanks (DFT) which will feed the hoppers (DFT) and from there go to the hoppers (TCRD) of DDCL in the step of feeding the digesters.

From the exhaust pipe of the hoppers (TCRD), organic materials, biomass and sludge, will be released in the sedimentation zone, through the opening of the guillotine valve (vg). The lighter particles will attempt the ascent, hampered by baffles (df) and the heavier ones will tend to sink to the bottom, hampered by horizontal flow mixers (agf) (with a scope limited to the valley of the settled sludge) and from the gas tries to rise to the surface. In this way it promotes the mixing and the formation of gas.

We mention only to phenomena that occur in the type of digestion that depending on the chosen operating temperature of about 35-37 oC is defined mesophilic and unfolding in a single-stage digestion chamber is defined, as very different from the digesters known, to form and size, the functions are identical. In fact, the digesters usually have cylindrical sections, and generally do not exceed the digestive capacity of 2500 – 3000 m3. While the example we are considering, that is designed to exploit the waste heat from a thermal power plant of 320 MW, we have twenty digesters with a capacity of 20,000 m3 each. Considering that the organic matter fills the digesters for about 65% of their capacity, the remaining part is occupied by the gas produced by the biological breakdown. Overall, the plant will have a volume of 400,000 m3, of which 260,000 and 140,000 occupied by digestion gas. Digesters so large were never conceived because no one has ever thought to take advantage of the wasted heat from power plants to produce new energy.

The production of biogas in D.D.C.L.

The biogas is composed of methane and CO2, these gases have a very different weight between them. The CO2 at atmospheric pressure and at a temperature of 35 oC (Ps 1.85 g / l) weighs

almost three times as much methane (Ps 0.65 g / l), so if we put the suction valves on the walls of the digester , just above the free surface of the slurry, after measuring the concentration of the gas, with appropriate probes, establishing minimum and maximum thresholds, we can inhale or tap periodically CO2 with the appropriate electric blowers and enter it in the greenhouse limestone SCMCV adjacent. In this way we aspire also part of the hydrogen sulphide (Ps 1.4 gr / l). The CO2 in the basin is used to produce calcium carbonate, through the corrosion of the limestone. One part is transferred to the greenhouses synthetic photo to be used as a nutrient and produce more biomass that will produce more biogas, not extracting it would be a ballast that reduces the calorific value and performance of the digester. In this way we have of biogas with 80-90% methane, instead of the normal 50-70%. This can not be done in the existing digesters. But not enough, the remaining portion of CO2 that will go through the whole process of filtration and combustion of the CTE, also will not be emitted into the atmosphere, as in all existing thermal plants, which expel the fumes into the atmosphere. Hydrogen sulphide aspirated along with CO2, can be oxidized to sulfur anhydrite (2 H2S + 3 O2 → 2 SO2 + 2 H2O) and then as sulfite and sulfate. Another advantage of this type of reactors, divided in basins, with loading and extraction of the digestate from above, is the possibility to divide the load zones of the various matrices based on the digestion times of each individual basin. As the energy consumption of zero (recovered from the waste heat of the (CTE), and being very high volumes available, we can also digest substances with far digestion times, if we do not have anything better to digest. Digest is always better than burning even with very low yields. But, having the ability to take advantage of this great opportunity, we could set the whole energy policy and environmental protection on this system. To saturate the great potential of wasted heat from power plants and heating plants, generally , we will be forced to set up a company proof of pollution and global warming.

Obviously, not only in Italy., for once, a company Global, in the best sense of the word.

Inside these reactors, devoid of oxygen at a constant temperature of thirty-seven degrees, the material, in slow motion, undergoes biochemical reactions that lead to the formation of biogas (methane and carbon dioxide) and water. What follows in this chapter, it is not my bag of flour, and I could not cite the source, having found written the same things, in many publications and dissertations.

I say this not in a derogatory sense, but to validate the great process of anaerobic digestion, which, like photosynthesis, the carbonation cold rocks, burning, was invented by nature. The man has only made the plants, where these processes can take place under control. However, these processes have never been put together in a single system, as in DCPTCG to protect the environment and produce clean energy, at the same time.

In anaerobic digestion biogas production, from organic residues, occurs at the microbial level through: an initial biodegradation of the material performed by mold, bacteria and acidogenic fermentation; made a subsequent methane in anaerobic environment, only by methanogenic bacteria. The phase of biodegradation can, in turn, be divided into two sub-steps: the hydrolysis step and the acidic phase.

During the hydrolytic transformations take place that lead to the degradation of organic substances into simpler compounds more complex, creating the conditions for the effective performance of subsequent responses made by specific microorganisms: acid fermentation, fermentation and alkaline

methanogenic phase.

The bacteria feed on assimilating the organic substances, especially those involved in this phase are the fermentative bacteria. At the initial state, however, these substances are made up of polymers, that the bacteria can not assimilate directly. Occurs then by enzymes the transformation of these macro-molecules into smaller molecules. The bacteria can at this point hydrolyze the primary substrate – made from cellulosic materials, proteins, lipids and carbohydrates solubilizzandolo into simpler molecules. In fact it has the hydrolysis of polysaccharides to simple carbohydrates, proteins to peptides and amino acids, fats to glycerol and fatty acids. In this first phase also, thanks to the micro-organisms of putrefaction and precisely through the work of molds of the genera Penicillium, Aspergillus, Rhizopus, and bacteria of the genera Bacillus, Pseudomonas, Proteus, Serratia, are destroyed, in an aerobic environment, the nitrogen compounds. In this stage there is the production of ammonia (NH_3), carbon dioxide (CO_2) and hydrogen (H_2).

Acidogenic phase follows in which the products are already decomposed further processed by means of acidogenic bacteria that produce low molecular weight organic acids (acetic acid, formic acid and to a lesser extent propionic acid and lactic acid), alcohols (ethyl, methyl, propyl) , aldehydes, ketones. The production of organic acids in this stage can reduce the pH, so it may be necessary to dab with addition of lime or ammonium hydroxide. In this stage, by the work of bacteria of the genera Bacterium, Cellulomonas, Pseudomonas, and molds of the genera Penicillium, Aspergillus, Trichoderma, is also transformed the cellulose before in cellobiose and then into glucose. The acids are then neutralized and there is the formation of salts which will later be decomposed into carbon dioxide and methane. In the phase of methanisation the

methanogenic bacteria utilize the organic acids and the salts produced in the previous steps and turn them directly into methane and carbon dioxide. These bacteria are characterized by a very slow growth that takes place only in an anaerobic environment. They are of the genera Methanobacterium, Methanococcus, Methanosarcina and are present in natural sediments, in landfills, wastewater, and manure in the rumen of ruminants. The methane product results for the 72% from the fermentation of acetic acid made by methanogenic bacteria vinegars clastic ($CH_3COOH \rightarrow CH_4 + CO_2$), while the remaining 28% may derive from the reduction of carbon dioxide for about of H_2-oxidizing bacteria or by the reduction of methanol possibly product of the first stage. $CO_2 + 4\ H_2 \rightarrow CH_4 + 2\ H_2O$)

The sulphate reducing bacteria are present in the sewage with high concentrations of sulfur and sulfates, and thanks to their produce hydrogen sulfide which, if present in large quantities, gives the sewage an unpleasant smell of rotten eggs. The Nitrifying bacteria reduce nitrites and nitrates producing ammonia or nitrogen gas. The metabolism of proteins not only leads to the formation of acetic acid and pyruvic acid, but also of many other substances derived from the free radical of each amino acid such as CO_2, H_2S and NH_3 especially. The presence of these nitrogen compounds has the dual function of providing the necessary nitrogen to the synthesis of bacterial and help to maintain the pH around the neutrality due to the action of ammonia buffer organic acids present. Values □□of pH more acidic optimum interval indicate undoubtedly an accumulation of volatile fatty acids, generally caused by overfeeding of the reactor, which causes inhibition of bacterial activity. Values □□are more basic index instead of an accumulation of ammonia, a substance which, if present in concentrations above 3000 mg / l, inhibits both the acidogenic bacteria that methanogenic; at the same time there is excessive production of hydrogen (H_2) and hydrogen sulphide (H_2S). Typical values □□for digesters operating in optimal

conditions and are stable between 3000 and 5000 mg of CaCO3 per liter. The alkalinity is a parameter of fundamental importance in anaerobic processes, bearing in mind that generally the rate of growth of the bacterial populations metanigene is extremely small, it may sometimes happen that on the occasion of an increase of the organic load increased capacity hydrolytic and acidifying the system determine an imbalance of the bacterial population in favor of the acidogenic component, and then to the detriment of methanogenic component. There will thus be a transitory phase in which it will be observed an increase of concentration of volatile fatty acids. And in these cases is of fundamental importance the buffering capacity of the system, which must be able to counteract the lowering of pH. The simplest procedure used in the case of excessive imbalance consists in practice of the inputs of lime inside the digester, so as to obtain an increase of pH. Normally develops in the digester a buffer system due to the coexistence of ammonia resulting from the degradation of proteins and bicarbonate from the dissolution of carbon dioxide. As a final product of these reactions has a dissolved salt which confers alkalinity to the medium such that they can control the process and possibly dab accumulation of volatile fatty acids. The monitoring of the composition and the amount of the biogas produced is of fundamental importance for the control of the stability of the anaerobic digestion process. If the reactor is operating stably, in fact, the production and composition of the gas, expressed at least in terms of the concentration of methane and carbon dioxide, are constants. For example, a decrease in the exit gas and an increase in the percentage of CO2 may indicate inhibition phenomena due to the strong presence of volatile fatty acids. It follows that the analysis of the gas flow can not be associated with the control of parameters, such as the concentration of volatile acidic substances and the alkalinity of the medium. Generally, one can observe three different situations: a low concentration of fumes produced by fermentation acid (VFA), associated with a significant

production of biogas in which the percentage of CO2 is at between 25-33% of the sample, indicates that the process is taking place steadily and has a good ability to transfer by acidifying bacteria to those methanogenic; increasing concentrations of VFA in time, together with a production of biogas in which the presence of CO2 tends to increase with time until reaching values equal to ⅔ of production, indicate that the acidifying bacteria are strongly prevailing on the methanogenic population, creating a strong accumulation of VFA in the digester; an increase in the concentration of VFA joined to an emission of biogas can be gradually decreasing index of problems related or inhibition of certain reactions or increase the toxicity of the environment in which the digestion takes place. You can have limiting conditions inside the digester due to the presence of inhibitory substances, such as residues of pesticides and pharmaceuticals, solvents, disinfectants, residues from treatments of food preservation, heavy metals, salts, ammonia nitrogen (NH4 +) and others. “

Mobile station selection and waste sludge

The separation of organic waste and pre-treatment of the data can be made from a mobile workshop that will be powered directly from the vehicles of the collection of waste from urban, industrial, agricultural, and so on. The mobile station will be equipped with a loading hopper, a conveyor belt with bag-breaking device, the various devices of coarse crushing, sieving, metal removal, and discharges in separate containers for the material discarded. The sludge extracted from reservoirs (braa, brad and ponds sbfscv) or from tankers, which easily may contain stones will pass through filters or cyclone mesh filters. The material selected will be discarded and sent to other sites in order to be recycled or incinerated. In the case considered, a combined cycle power

plant of 320 MW, with the waste heat, we can feed as many as 20 linear digesters each equipped with 11 workstations hopper loading, with double strike. So, we will have less than 440 loading stations of the digesters. With an adequate number of mobile stations will be able to avoid long lines of vehicles, whereas, in addition to food waste and biomass, there will also be the evacuation of drainage bags containing the digested with the same frequency as the loading of the digesters.

Dehydration, stabilization of sludge composting (DDCL)

The proposed system is so beneficial to the environment that are difficult opponents will find arguments against. One of these arguments the opposition might be the large amount of sludge that will produce hundreds of times higher than the current ones already put in crisis the current management system, based on landfills and aerobic composting. The latter, granted only to the small percentage of sludge that are reused in agriculture. The rest is incinerated, emitting high CO2 emissions. It being known that no digester guarantees 100% digestion of all organic substances, if we want to recover for environmental heat and CO2, we necessarily review how to produce and manage the sludge. The D.D.C.L. also face this problem and mud will become a valuable resource environment, producing them in a sustainable manner, ensuring the hygiene with a good system of dehydration, composting and stabilization of calcium powder. For this reason, one of the most important sections of the installations DCPTCG it is the manufactured DDCL, ie “digesters, dehydrators, composters linear” which are also the plants born from the synergistic processes that take place separately today, without taking advantage of the benefits that result from this union. In the specific case, the design of a DCPTCG begins in D.D.C.L.. The starting point can not be anything else, that the size of the

tube bundle, which comes out from the recovery of the waste heat of the heating or CTE examined. From the heat capacity of this shell and tube heat exchanger, building the digester, then the rest of DDCL and then the other sections of the DCPTCG. As you can see from the accompanying drawings of the entire system: (1) flow scheme, (2) longitudinal section, (3) cross section. The process begins with the recovery of the hot waters from any thermal plant, at an average temperature of about 45 oC, which are pumped in a tube bundle (Ftac) immersed in a digester along with spacing from rooms of accumulation and extraction of biogas and hoppers (TCRD) can be loaded from the top. Above the rooms is the treatment of biogas slurry with chambers of bagging compost (CT). Above are the silos containing biomass to digest (sbm) and calcium oxide (sca). Below, are the areas of sedimentation, digestion (dg) of biomass, whose storage areas sludge are separated by bumps, and separators, so as to realize the basins that enable autonomous digestions and extractions of sludge, while being only the digester. Each hopper match a hollow dirt collection with a stirrer of the same (agi), which acts only in that area. D'fundamental importance are the hoppers (late), which serve both for the rapid loading of the biomass, both for the slow process of dehydration and composting of sludge. These, as is seen from the drawing of detail (1), for the loading, using the central zone consists of a cylindrical tube equipped with a stirrer paddle vertical (MSN), a shredder with rotating reels (trait) and a final tube discharge with a guillotine valve (va), while the peripheral zone, truncated cone, which serves as accumulation and sludge aeration extracts, is equipped with a simple ramp with perforated tubes (RTF), powered by a electroblowers (hex) that v 'atmospheric air enters. Therefore, the timing of anaerobic digestion and the phase of evacuation, dehydration, composting, sludge stabilization and bagging, all that will happen with an aerobic cycle, coincide. This great benefit to the quality of the product and the economics of the process you can get to the digester combining linear and hoppers (TCRD) the system of

dehydration and chemical stabilization of the sludge already deposited by the undersigned (CE2009A000008 of 15/09/2009) , allowing you to have a dehydrated product, bagged compost, in a single process. With this process can be filled slowly and simultaneously hundreds or thousands of sacks. E ‘consists of a large tank (vdf) with hundreds or thousands of floating weighing about 350 grams. (Ga) in which pour the mud held in suspension with dell ‘blown air on the bottom (asf) and dilution water (adl). The mud without additives, is extracted from the hopper (TCRD) via the pump lifting (psf) and sent to the center of the distribution tank sludge (VDF) passing through strainers extractable (FCE) and is distributed over the entire surface. This tank, at atmospheric pressure, occupies the entire area of □□local dehydration. Under the tank and floats (ga) of the bags are suspended draining hanging in the rafts (ca) communicating between them, in which will be fed air blown carrying the powder of calcium oxide (bait) metered by the valve (VDCA). When the hydrostatic pressure in the tank is strong enough to temporarily lift the floats pass about half a liter of mud to each float that will fall on a conical diffuser (AD) who will distribute it over the entire circumference, prompt separation of the sludge from the water to be released through the porosity of the bag, while the mud, heavier, it will fall into the bag to mix with calcium oxide. Each bag will be mounted on the outside of a cylindrical frame in stainless steel inside which is mounted a small mechanical stirrer fed with a pneumatic motor (AGP), connected to the compressed air outlet with a quick coupling. The power of the air motor will be timed. The detailed design (1) shows some components of the dewatering system and draining compost in bags. We can extend the filling of the bags for a time corresponding to almost all the period of digestion, and possibly shorten or lengthen both treatment times according to the characteristics of the energy matrices. In fact, the digester linear, allowing the evacuation of sludge from above, allows to digest, in areas, matrices very different. The supply air, before the hoppers, then into the

distribution tank, and finally in the bags and the moderate rotation of the agitator in the sacks themselves, will have the function and biostabilizzare aerobically composted organic substances not digested and mixing calcium oxide powder, in the percentages required by the compost (5-15%), which ensures the stabilization chemistry, contributing to dryness, without compaction. With the emptying of the hopper (TCRD) pre-processing, detected with capacitive probes, it will stop the electric pump lifting mud and dilution water (taken from a final biological descent from the pond sbffv), and thereafter it will close the slide valve the silos of lime (vg), and stop the rotary valve power oxide lime (VDCA). Will remain, however, in function blowers which keep the sludge in suspension (hex) and the distribution of compressed air to the agitators, continuing to perform the function of the sludge aeration, for the programmed time. At the end of each cycle DDCL, after replacing the bags (us), is carried out a washing cycle of the tank with clean water, coming from (sbffv), that filtered from the bags just fitted, goes to feed the collection basin and oxidation (brad) of water to be treated. In this basin there’s also other wastewater and the supernatant of the digester feeding the biological ponds (sbsfv) FSV of the building, the subject of another patent application.

With the system D.D.C.L. we will be compacted in the rooms at the end of processing hundreds or thousands of bags of compost (CT), mounted on a frame of stainless steel, with an internal agitator pneumatic control, supported by the frame. At the end of the cycle, we simply place a small trolley jack under Lunches, disconnect the metal clamps with clamp closure, freeing up the bag from the frame, then move the hand lever of the agitator that facilitates the separation of compost from the frame, lower and remove the bag from the frame with the compost, seal the upper end and through the trolley itself, transport it to the means of transport. Expecting any

accidental breakages of the bags draining the chamber floor filling of the bags will be made with grilled removable fiberglass or steel panels mounted on a common frame filtering: removing the grid and the panel below it recovers completely dehydrated compost that can be also bagged.

The overlap, to the digester, from the street level, this compact system (not bulky) for dehydration and biostabilisation aerobics and chemical sludge, does not produce bad odors, despite the anaerobic process and sludge treatment. Indeed, the filtered air, which escapes from the bags and is not ejected into the atmosphere, but through Dampers gravity and short underground channels will enter the environment of the basin (brad) and from this, through elettroventilatori (eva), in the greenhouse of the basin (scmcv) FSV of the building, where the air can only escape from the top vents (ua) after suffering through the whole process of deodorization in contact with the limestone (scmcv). The existing digesters, consisting of bulls, dehydrators, landfills, incinerators, they can not be matched to the greenhouse buildings, which do not exist, they are forced to emit odor, as well as polluting and wasting resources.

Referring to the digestive capacity average of 6,933 t of waste calculated to cap the day. 25, which is 20% dry to about 1400 t / d, assuming that the end result is a compost with 30% moisture, packed in 50 kg bags, ogn’una of sections 220 and disidratatrici compostatici system, will produce lots of 124 fortnightly T. compost [(1400 * 15) * 1.30 / 220], divided into 2,480 bags. The space occupied by each section dehydrator compostatrice will be only about 372 m2 (0.15 * 2480).

At the end of each cycle D.D.C.L. will be carried out a

washing cycle of the tank with clean water, cs from (sbffv) that filtered from the bags just fitted will feed into the reservoir and initial oxidation of water to be treated (brad) that feeds the ponds biological SBFSCV

Considering that the average time to fill a lot of drainage will be about 12-18 days. (Depending on the timing of digestion) and that each lot has its own system of aeration and mixing, if everything works as it should work, and there are no reasons not to believe it, no existing sludge treatment system could boast of being so complete, Compact, simple and sustainable.

With the system D.D.C.L. we will be compacted in the rooms of the end treatment thousands of bags of compost (without any need for handling during processing), mounted on a substrate of stainless steel and contained in a frame, with an agitator inside a pneumatic control, supported by the same frame. At the end of the cycle, we simply disconnect the bag and the frame from its attacks, carry everything to the point of loading onto the means of transport by forklift equipped, remove the agitator, close the bag, remove the frame, raise the means of transport sack of compost; open the frame, replace the bag, replace the agitator and reconnect and dinghies to fill, under the supply tank. These, which seem complex operations, would replace machines much more complex and expensive, made of centrifuges, dryers, heaps of mud, augers, conveyors and large industrial buildings. Today aerobic composting, not preceded by the anaerobic, occurs in different phases with substantial costs by moving the compost in different places. During these phases in the atmosphere emits CO2, CH4, SOx, NOx, etc. .. Absorbs electrical energy for aeration, but does not contribute to the production of new energy, through the gas and nutrients contained in the wastewater recovered.

The overlap, to the digester, from the street level, this compact system (not bulky) for dehydration and biostabilisation aerobics and chemical sludge, it should not produce odor, despite the anaerobic process and sludge treatment. In fact, the filtered air escapes from the bags and is ejected into the atmosphere, but through Dampers gravity and short underground channels, will be discharged into the basin (brad) and from this, by means of electric fans (IV), in SCMCV greenhouse, where the air can only escape from the top vents after suffering through the whole process of deodorization in contact with the limestone. Then, the system will not produce bad smells.

Composting of sludge were not produced in DCPTCG

In Chapter 4 and Chapter 32 mention of tankers disidratatrici (patent application CE2009A000010 of 28/10/2009), that would reduce costs and the number of transport trucks with about fifty times, if the sludge were transported already dehydrated. The solution proposed by myself and, of course, gone unnoticed, not to alter the market for “self espurghi” was precisely the tanker to espurghi with dehydration and chemical stabilization with powders of calcium, which is nothing more than the same system of dehydration in bags described above but mounted on a wagon car. This system has been thought by myself, not only to reduce the cost of transportation of the sludge but also to avoid destroying the bacterial flora of the digestive sections to each purge, returning the slurry to the pit after dehydration under alkaline conditions, to promote digestion methane. Obviously, the sludge produced with this system will be more rich in calcium but can not be digested and definitely not composted. If you do not want to continue with the current tankers that would bring with sewage sludge digested and undigested to the digesters, we could use the following system:

Drying in a rotary kiln already dehydrated sludge and calcium-rich (30 – 50% by weight) and with these still hot and placing the same in the network of pressurization of the bags that also transports the calcium oxide. This system would also composted sludge from external sources, to save calcium oxide, to bring warm air into the bags that would improve the dehydration, to keep dry and free from condensation pipes that carry air and calcium oxide.

Gasometers

The biogas plant in question is of much higher quality than the existing biogas produced by the digesters were being sucked up the heavier gases, such as CO2, H2S, but in the specific case under consideration, coupled with a thermal power plant of 320 MWh would also a large storage capacity of 160,000 m3 (6 hours of average production calculated cap.25). 8,000 m3 / h for each of the 20 D.D.C.L.. I am not aware that there are such large biogas plants. This is another reason to better distribute the territory energy production, avoiding large thermal power plants, unless, the biogas produced is not included in the distribution network of natural gas, after separation from CO2.

We continue the reasoning set to the size of a power of 320 MWh.

To compensate for variations in production, you will always need a gasometer with volumetric expansion bell or diaphragm of at least 16,000 m3nei close to the end user and one from 1600 m3 at the head of each digester. Suppose we choose the gasometer Membrane: The outer membrane plays a protective function and is constantly under pressure to static reasons.

The gasometer itself is formed by the double inner membrane. This, depending on the level of gas, moves in the vertical direction. In these gasholders particular attention is paid to the design loads, such as internal pressure, wind strength, snow load. The membranes, coated with PVC, have characteristics, fire fungicide, and are resistant to UV rays. To protect them from elements such as (CH4, CO2, H2S etc.). Internal membranes and floor have a special coating. A separate conduit for the inflow and the output of the biogas in the gasometer serves to create an ideal mixing of the gas inside the gasometer. Must be provided for more safety valves sized for the maximum productivity for any over and uplift. More blowers supply the gas tanks of pressure needed to cope with the loads data from the wind and snow while creating a pressure on the inner membrane. All the blowers are connected, via a tube, to the gasometer. A check valve, for each blower, in case of power failure prevents the deflation of the air chamber between the inner and outer membrane. Each of the 220-lead power of the biogas will be equipped with a check valve in a safety valve with vent conveyed towards the torch. Obviously, the consumption of biogas by the burners will be a priority compared to other fuels, other plants would otherwise be needed for the treatment and commissioning of the gas network with other investments. What gasholders overpressure must not be formed, and then for each gasometer you must have a safety valve that releases the gas into the atmosphere through a torch when the pressure exceeds values □□of 800-1000 mm H2O: this is obtained through a hydraulic guard whose hydraulic head determines the pressure safety. The guard unit is provided with additional safety devices such as pressure switches and exhaust valves. Similarly to overpressure should be checked also with the uplift pressure valves supply. Condensate separators shall be installed in all low points of the transport network of the gas.

25) The dimensional estimates of potential allocations DCPTCG in Italy

As we have seen above, in a single-stage mesophilic anaerobic digester with wet reactor temperature of 35-37 ° C, the percentage of dry matter in the sewage digestion can be up to 15%. From the various matrices by Waste loadable we can estimate an average productivity of 87 in Nm3 / t with an average hydraulic retention time of fifteen days. Whereas the matrices, on average, are constituted from 20% of dry, assuming you want to keep constant in the digester, the average concentration of around 8% of dry sludge, the end of the retention time we have to add 40% by weight of the matrices (8/20), after you extract the digested sludge, while the excess water and foams, in the early stages of exercise and loading, it will be nearly in sections sewage overflow channels via longitudinal to the digester. We will have, therefore, a digestive capacity average of 6,933 T of waste the day (260,000 * 0.40 / 15) and an average hourly production of biogas equal to 25,133 Nm3 / h of biogas [(260,000 * 0.40 * 87) / (15 * 24)], contributing to energy production for 160.851KW / h (25,133 * 6.4), therefore, potentially to the supply of 29% of energy source needed to power the power plant in question (160.851/552.000). If instead of using waste matrices are using exclusively, energy matrices of quality, capable of producing 390 Nm3 / t, we may even produce more biogas the consumption capacity of the plant. In fact, the biogas produced would be 112,666 Nm3 / h [(260,000 * 0.40 * 390) / (15 * 24)] and ensure energy capacity in the hearth of 721,000 KW / h against the 552,000 needed. (In this case it would be necessary to put in the gas network).

Continuing with the example of dimensioning of a plant DCPTCG coupled to a thermal power plant of 320 MW can be considered necessary for the following areas, as well as those employed by the CTE: n. 20 D.D.C.L. subject to the matrix grain storage silos and those of calcium oxide, dim. 350 * 20 = 140,000 m2 m, n. 20 F.S.V.dim. 350 * 50 = 350,000 m2 m, n. 22 roads 350 * 15 = 115,500 m2. Therefore, the total space required is about 61 hectares, excluding the gasometer that will be installed in the power station. Clearly, they come out of the very large works, but you have to admit that would solve very large problems, the solution of which, today, is not even touched by the current systems. However, considering that by this simple sizing, can be estimated on 0.2 hectares of land required for each MWh of power station capacity (61/320), it turns out, for example, to clean the energy produced by the CTE Brindisi, which is coal-fired and already occupies an area of □□250 hectares, we should add the same plant (DCPTCG) that would occupy an additional 520 hectares (2,600 * 0.2) plus a new CTE able to consume at least the biogas produced by recovering waste heat from the same resource center, which could lead to a doubling of the energy potential (if not the gas produced does not get in the network). The same argument could be made for the Porto Tolle power plant (2000 MW), which already occupies an area of □□220 hectares. But it would be better otherwise distribute the plants in the area, producing less energy in a single location. For example, in proportion, a plant DCPTCG with a potential of 32 MWh would occupy only 6.1 acres, and would consist of 2 FSV flanked by n. 2 D.D.C.L. over the space necessary to C.T.E. original. It would become the center of reference of the surrounding area is not only to produce clean energy, but also to purify and alkalize the water, to digest organic waste to produce compost, with a much higher quality than the current costs and to say the least halved if Consider the costs currently incurred to produce energy, purify, digest, compost. Eventually, the space occupied would be offset by no longer occupied spaces for these treatments eliminated.

I reported above, the table extracted from Wikipedia with all the Italian power plants, so that anyone, especially environmental organizations, instead of making demagogic protests they can check on the spot, if the conditions exist for clean energy from any power plant even if powered by coal. If there are may propose to resize the potential in that place, moving the rest of the production in another area equipped with the necessary requirements. The same goes for all systems with a chimney, especially steel mills, but also cement factories.

The thermalcovered depurcogeproduction global energy production is very different from that we know and also from energy simply clean today so exalted, but not competitive when compared with the DCPTCG nor on the environment or on that statement. Besides, the global depurcogeproduction thermalcovered, can be made at home by every sovereign state, without the need for natural resources and raw materials subject to speculation on international markets.

In this example it turns out that the winds manufactured FSV size 50 * 300 * 70, divided into thirteen floors and various sectors, may contain a total of 234 hectares of cultivated land and water at a controlled temperature, N. 2,088,960 (104,448 * 20) Hanging baskets containing 1,462,272 m3 of limestone. But, in case of necessity, may contain tens of millions of baskets with ion exchange resins in slow motion to return brackish water irrigation of fields.

The buildings D.D.C.L. size 20 * 300 m, will be lower than FSV. They may have, for example, of the loading stations and extraction sludge every 27.5 m, which represent 11 locations for each line, for a total of 220 and a total volume of 400,000 m3 digesters, with the slurry in digestion of well

260,000 m3 . Thinking that, normally circular digesters superamo not the total volume of 3,000 m3, do not recover the fumes and not abate emissions of CO2, absorb almost 50% of the energy produced by the CTE to their matched, one can easily understand that the proposed system is vastly superior in the potential quantitative and qualitative energy cleansing.

The waters in the basins that will not be only to those from the thermal power station, necessary to heat the sludge (40,432,236 L / h.), But it will be necessary to add other wet digestion, cooling fume sluicing sludge dehydration and composting, aquatic cultivation, irrigation of crops land, and to the realization of the rains, possibly acidic, which neutralize mainly CO2 in greenhouses limestone. The latter will be the most abundant, if you want to use sustainable systems to break down the percentage of CO2 in the atmosphere and carbon dioxide in the oceans. But in the absence of large amounts of water, we may settle for the same recycle water producing and precipitating in the basins (braa), carbonates of calcium and magnesium, at the expense of the rocks and of CO2.

The plant is sized for the thermal power plant of 320 MWh was assumed a flow rate of water 240,000,000 L / h, equivalent to the one we use for cooling the flue gas, which falls in the same basin. The great demand for water will require to realize the size of plants rarely seen in the example except that the central energy production is not placed in parallel to a great lake or a large reservoir. But as said, the sizing system illustrated is modular and allows to assume the size of the plant immediately, with a simple proportion, even for powers of a few MWh.

A final consideration on the spaces occupied by the plant

DCPTCG coupled to a thermal power plant of 320 MW whereas the amount of CO2 produced from the plant assumed (74,093 kg / h) would require 650 trillion of trees with a trunk 30 cm, it is true that these absorb an average of 1 kg of CO2 / year (74,093 * 24 * 365). Granting to each shaft 16 m2, these would occupy an area of about 1,040,000 hectares of land [650,000,000 * (16/10.000)], compared to 61 hectares required by the plant.

No need for official data to understand the potential of the system DCPTCG, if applied in Italy. From Wikipedia, quote data concerning, the national energy consumption, which in 2010 amounted to 346,000 GW, while from a publication available online: http://www.ladurnerambiente.it/544.pdf is given below specific skills for the production of biogas from various matrices expressed in m3 / T: Mud civil 7, 10 agro-industrial sludge, manure 64; OFMSW (organic fraction of municipal waste) 137; Waste animals 208, 252 agro-industrial plant waste, plant waste from farming 259; starchy and dedicated crops 389; Oilcrops protein 663. We can assimilate the values involved in aquatic plants and plankton in the discard pile and vegetable crops dedicated estimating a specific capacity of about 320 m3 / T.

From another web publishing: http://www.agroenergia.eu/attachments/073, citing data compiled by the CRPA spa Reggio Emilia, it appears that in Italy we produce annually the following matrix production of biogas from waste, in tonnes:

Manure 180,000,000 (* 64); agro-industrial scraps 12,000,000 (* 252); Waste slaughter 2,000,000 (* 208); Sewage sludge 3,000,000 (* 7); FORSU 9,000,000 (* 137), Crop residues 10,000,000 (* 252).

Multiplying these values □□for specific skills for the production of biogas in m3 / T shown in parentheses, we would have a national production of biogas of about 18.734 billion. m3/year of biogas production and a specific capacity of media, from waste, of 86.7 m3 / T. If this resource is not the sprecassimo to a great extent and had modern thermal power plants, combined cycle and a yield of 55% by multiplying this production potential for the lower average specific heat of the biogas, estimated at 6.4 kW/m3, we would energy potential of the country due to scrap and waste, approximately 66,000 GW (18,734,000,000 * 6.4 * 0.55). But as explained, the facilities of “DCPTCG” can enrich the percentage of methane in the biogas increasing the calorific value. For the moment we consider that this advantage affects only for 10% and bring this production to 72,000 GW.

Here below a table unofficial, showing the Italian power plants, extracted from Wikipedia, and modified by removal of other types of power plants.

Central Society Type Power (MW) Address City Prov.

A2A S.p.A. [1]

The Cassano d’Adda

Thermoelectric

1000 [2]

Cassano d’Adda

MI

Ahlstrom Turin S.p.a.

Central Mathi Thermoelectric

18 Via Stura, 98 Mathi

TO

Environment S.p.a.

Central Environment S.p.a. Biomass 18 Loc Casone Scarborough

GR

Bees energy S.p.a.

Central “Api Energia S.p.a.” at the refinery Bees Thermoelectric

286 Via Flaminia 685 Falconara Marittima

AN

Azimut S.r.l.

Central Azimut

Thermoelectric

6 Industrial Zone Grumento Nova

PZ

Botto Giuseppe and children S.p.a.

Central Bulfons

Hydroelectric

1 Via Lungo Tower, 55 Tarcento

UD

Carlo Gavazzi Green Power

Bando d’Argenta Biomass 20 Via Val d’Tree, 73 – Fraz Call

Argenta

FE

Cartiere Modesto Cardella S.p.a.

Central Portula Thermoelectric

11 Via Hot Water – Fraz San Pietro a Vico Lucca

LU

Cartificio Ermolli S.p.A.

Central Cartificio Ermolli Thermal Spa

Via G. Ermolli, bushel 62 Udinese

UD

OTTANA ENERGIA SpA Central Ottana

Thermoelectric

140 SP 17 Km 18 Ottana

NU

Edipower S.p.A.

Central Chivasso

Thermoelectric

130 Chivasso

TO

Edipower S.p.A.

Central Sermide

Thermoelectric

1140 Via C. Colombo, 2 – Fraz Moglia Sermide

MN

Edipower S.p.A.

Central San Filippo del Mela

Thermoelectric

1280 Arches Contrada Marina San Filippo del Mela

ME

Edipower S.p.A.

Turbigo thermal power station

Thermoelectric

1740 Via Centrale thermal Turbigo

MI

Edipower S.p.A.

Thermoelectric power plant in Piacenza

Thermoelectric

850 Via Nino Bixio 27 Piacenza

PC

Cofely Italy S.p.A.

Central Acerra

Thermoelectric

100 Prov.le Road Pomigliano snc Acerra Acerra

NA

Edison S.p.A.

Altomonte

Thermoelectric

760 Altomonte

CS

Edison S.p.A.

Central Battiggio

Hydroelectric

23 Loc Battiggio Bannio Anzino

VB

Edison S.p.A.

Central Boffalora Ticino

Thermoelectric

80 State Road Boffalora Magenta – 0,970 km Boffalora / Magenta, km97 Boffalora Ticino

MI

Edison S.p.A.

Central Bussi sul Tirino

Thermoelectric

130 Municipal Road Tremonti 1 Bussi sul Tirino

PE

Edison S.p.A.

Candela

Thermoelectric

380 Candle

FG

Cofely Italy S.p.A.

Central Castelmassa

Thermoelectric

50 Via Camatte 4 Castelmassa

RO

Edison S.p.A.

Central Cologno Monzese

Thermoelectric

50 Via Carlo Porta, 13 Cologno Monzese

MI

Edison S.p.A.

Jesi – Thermoelectric Energy

140 Via Barchetta, 1 Jesi

AN

Cofely Italy S.p.A.

Central Nera Montoro

Thermoelectric

50 Via the Establishment, 1 – Fraz Nera Montoro

Narni

TR

Edison S.p.A.

Torviscosa

Thermoelectric

785 [19]

Via zuina South Torver

UD

Edison S.p.A.

Central Venina

Hydroelectric

146 Via Pradella 15 Piateda

SO

Edison S.p.A.

Porcari Thermoelectric

100 Via dei Bocci, 2 Porcari

LU

Edison S.p.A.

Simeri Crichi Thermoelectric

860 Simeri Crichi

CZ

Edison S.p.A.

Marghera Levante Thermoelectric

740 Via Marghera 16 of Chemistry

VE

Edison S.p.A.

Thermoelectric disarmed

145 Via Zuccherificio 11 Sarmato

PC

Edison S.p.A.

Sesto San Giovanni Thermoelectric

Italy Viale 50, 588 Sesto San Giovanni

MI

Edison S.p.A.

Settimo Torinese Thermoelectric

50 Via Nervi ang. 1 Via Torino Settimo Torinese

TO

Edison S.p.A.

Thermoelectric Terni

100 Piazzale Donegani 4 Terni

TR

Edison S.p.A.

San Quirico Thermoelectric

135 Sugar Mill Square – San Quirico 3 Trecasali

PR

Edison S.p.A.

Verzuolo – Gever Thermoelectric

120 Via Roma 26 Verzuolo

CN

EGL Italy S.p.A.

Central Sparanise

Thermoelectric

760 Sparanise

EC

EGL Italy S.p.A.

Thermoelectric rizziconi

760 Rizziconi

RC

Electrabel Suez S.A.

Rosignano (Rosen) Thermoelectric

510 Via Piave, 6 Rosignano Maritime

LI

GDF SUEZ Energy Italy

Thermoelectric Voghera

380 [20]

Voghera

PV

Elettra GLT

Thermoelectric Servola

159 Via Servola, 1 Trieste

TS

Enel S.p.A.

Thermal power plant Galileo Ferraris

Termoelettricaa combined cycle

700 Fraz Leri Cavour

Trino

VC

Enel S.p.A.

Thermal power plant Alessandro Volta

Thermoelectric

3600 Pian dei Gangani Montalto di Castro

VT

Enel S.p.A.

The Central Box

Thermoelectric

1400 Levee Street Po Castel San Giovanni

PC

Enel S.p.A.

Central Santa Barbara

Thermoelectric

356 Cavriglia

AR

Enel S.p.A.

Central Eugenio Montale

Thermoelectric

1300 La Spezia

SP

Enel S.p.A.

Geothermal Valley Century 810 [22]

Square Leopolda, 1 Larderello

PI

Enel S.p.A.

Central Andrea Palladio

Thermoelectric

1218 Via the yards, 5 – Fraz. / Loc. Fusina

Fusina / Venice

VE

Enel S.p.A.

Thermoelectric Pietrafitta

510 Fraz Pietrafitta

Piegaro

PG

Enel S.p.A.

Central TEODORA combined cycle thermoelectric

750 Via Baiona 253 – Fraz.Porto Corsini

Ravenna

RA

Enel S.p.A.

Grazia Deledda Thermoelectric

240 Fraz Portovesme

Portsmouth

CI

Enel S.p.A.

Archimedes Thermoelectric

750 Loc Pantano Pozzillo Priolo Gargallo

SR

Enel S.p.A.

Thermoelectric Central Rossano

1740 Location Cutura Rossano

CS

Enel S.p.A.

Thermal power plant at Porto Tolle

Thermoelectric

2640 Porto Tolle

RO

Enel S.p.A.

Thermoelectric

320 San Filippo del Mela

ME

Enel S.p.A.

Termini Imerese Thermoelectric

454 Termini Imerese

PA

Enel S.p.A.

Central Federico II

Thermoelectric

2640 Location Masseria Cerano – Brindisi

BR

EniPower S.p.A.

Thermoelectric Brindisi

765 Brindisi

BR

EniPower S.p.A.

Ferrera Erbognone Thermoelectric

1040 Road Corradina, 27 Ferrera Erbognone

PV

EniPower S.p.A.

Thermoelectric Mantova

510 Mantua

MN

EniPower S.p.A.

Ravenna Thermoelectric

785 Via Baiona, Ravenna 107

RA

E.ON

Thermoelectric plant Ostiglia. Mantua. Thermoelectric

1482 SS 12 km Abetone Brenner. 239 Ostiglia

MN

E.ON

Tavazzano and Montanaso Thermoelectric

1740 [23]

Tavazzano with Villavesco-Montanaso Lombardo

LO

E.ON

Termoelettricaa combined cycle

Livorno Ferraris

VC

E.ON

Scandale plant Thermoelectric

814 Scandale

KR

FWI

Thermoelectric Ferrara

124 Ferrara

FE

FWI

Thermoelectric teverola

124 Teversal

EC

General Energy S.p.A.

Acea Pinerolese Industrial Thermal Spa

2 Via Poirino, 145 Pinerolo

TO

John Vignuda S.r.l.

S. Thermoelectric Antonio

1 Loc Over Water Tarvisio / Tarvisio Fusine Val Romana

UD

Iren Energia S.p.A. [24]

Moncalieri

Thermoelectric

800 [24]

Road Freylia Means No. 1 Moncalieri

TO

ISAB Energy

Priolo Gargallo Thermoelectric

322 Priolo Gargallo

SR

I.S.E. S.p.A.

Thermoelectric Taranto

160 Taranto

TA

The agricultural society Previera

Central IVPC Biogas 0,845 Loc The Previera Minehead

VR

Mascioni S.p.A. Mascioni Spa Thermal Power Plant

7 Via Mascioni, 4 Cuvio

VA

Piedmont Energy

Thermoelectric leini

272 Leini

TO

Sarlux S.r.l.

Cagliari Central Thermoelectric

551 Saras Spa SS 195 km 19 Sarroch

CA

S.E.F. S.p.A.

Thermoelectric Ferrara

510 Ferrara

FE

Selis S.p.a.

Thermoelectric Central Lampedusa

N.P. Via Cala Pisana Lampedusa and Linosa

AG

Serene S.p.a.

Thermoelectric Central Cassino

106 Provincial Road Consortium Piedimonte San Germano

FR

Serene S.p.a.

Central Rivalta Thermoelectric

53 Antique Street Pinerolo, 60 Rivalta di Torino

TO

Serene S.p.a.

Central Melfi Thermoelectric

106 Strada Vicinale Montelungo – Ski SATA – Frax. St. Nicholas

Melfi

PZ

Serene S.p.a.

Central Sulmona Thermoelectric

53 S.S. Apulo Sannitica 17 km. 69 Sulmona

AQ

Serene S.p.a.

Termoli power plant Thermoelectric

106 Location Pantano Low – Zona Industriale Termoli

CB

Sorgenia S.p.A.

Thermoelectric Termoli

770 Termoli

CB

Sorgenia S.p.A.

Thermoelectric Modugno

770 Modugno

BA

Sorgenia S.p.A.

Turano-Bertonico Thermoelectric

770 Lodi Turano-Bertonico

LO

Sorgenia S.p.A.

Aprilia Thermoelectric

Aprilia 770

LT

Sorgenia S.p.A.

Thermoelectric pisticci

770 Pisticci

MT

Thermal Celano

Thermoelectric Thermal Celano

Via Borgo Road, 14 Celano

AQ

Terna

Thermal power plant Marzocco

Thermoelectric

310 Via Salvatore Orlando Livorno

LI

Tirreno Power S.p.a.

South Torrevaldaliga

Thermoelectric

1520 Civitavecchia

RM

Tirreno Power S.p.a.

Naples Vigliena Thermoelectric

272 Naples

NA

Tirreno Power S.p.a.

Central Tirreno Power Thermoelectric Vado Ligure

818 Via Diaz 128 – Fraz Valleggia Quiliano

SV

The total power installed above is approximately 50,835 MWh, multiplying this value for 24 hours and for 330 days, we have the production of 402,613 GWh, which is already higher than the consumption recorded in Italy in 2010 (346,000 GWh) excluding the production of power plants hydro, wind and solar power that add up to more 9,221 MWh, equivalent to 18% (9.221/50.835%) Thus, we can approximate the thermal production in Italy to ‘82% of the total, amounting to 283,720 GWh (346,000 * 0.82).

Considering, as calculated above, that a combined cycle power plant with 320 MWh, which is the absolute best with a yield of 55%, has a power output of 304 MWh and produces in a year 2,407,680 MW (304 . * 330 * 24), wasted in the cooling waters and the atmosphere well 248 MWh (552-304), making the proper

proportions, with an average yield of 40% at the national level, the power outputs, thermal heat wasted is about 472,866,000 MWh (283,720,000 / 0.60). Assuming the cost of thermal MWh equal to $ 40 (50% of the total MW of electricity, according to the table MEPRI), every year, in Italy, is wasted in heat $ 18,914,640,000 (472,866,000 * 40), converted into euro (1/1.30) are € 14.549.723.000. If the waste from 72,000 GWh, seen above, were entirely converted into actual energy and clean in air DCPTCG combined cycle power plants with a combined well be worth € 4.430.000.000 (72,000 * 1,000 * 80/1, 30). If we consider that in a thermal power plant of 320 MW can combine a series of 20 linear digesters with a total volume of 400,000 m3 and an average digestive capacity of 6,933 t / d, as calculated, and then digest 2,287,890 T / year (6,933 * 330), in proportion, at national level, the energy potential of 50,835 MWh reported by Wikipedia, we could combine a digestive capacity of about 363 452 775 T (50835/320 * 2,287,890), which is about 1.68 times the total amount of waste we produce in a year (216,000,000 T). The difference between 363452775-216000000 = 147 452 775 T, can be used to digest protein crops, which have productive potential of biogas far superior to those of the waste (389 m3 / T). Thus, we could add a biogas production of 57.359 billion m3 (147 452 775 * 389). Multiplying this production to the lower average specific heat of the biogas estimated at 6.4 * 1.1 kW/m3 (whereas the linear coupled to treatment plants covered digesters can produce biogas with a higher percentage of methane) have the potential of 403,808 GWh (57359000000 * 7.04 / 1000.000) which added to the 72,000 GWh from waste are approximately 475,808 GWh, which, with the current efficiency of energy production by 40%, would produce 190,000 GWh. To reach the energy consumption of 346,000 GWh in 2010, would remain only 156,000 GWh to clean. Considering that we only digest new energy production, with higher production yields, we could also satisfy the national demand downloading from CTE warmer waters and realizing other D.D.C.L. which complement other F.S.V.. Today reads the temperature of cooling water

exit of the CTE can not exceed 35 oC, the water discharging directly into water bodies and in the sea. If they were unloaded in the plant, we can also download to 45oC. There would be even more energy recoverable if the water could further exploit the heat possessed raeffreddandosi in DDCL and in F.S.V.. It would require another study to ascertain how much energy we could recover from thermal industrial thermal plants such as steel, cement industries, supporting them DCPTCG.

Each of the plants shown in the table should be examined to see how to build a close DCPTCG. If you can not do it, you will agree, reduce the power and energy to adapt the central DCPTCG which may be realized in that place. Removed items, if reusable, can be used to build a new CTE with D.C.P.T.C.G. somewhere else.

26) The costs of D.C.P.T.C.G.

With this solution, which would allow the recovery of the heat of the thermal power, in fact, we would have cleared the costs of digestion of energy matrices that are worth at least 40% of the cost of production from biomass in Table EPRI (Sec. 21), then we can say that the energy cost, when fully operational, with all the appropriate facilities and no emissions, it could lower by 40% compared to $ 83.5 average rates, which are about EUR € 65 MWh. To simplify the calculations, we assume that these savings will be fully invested to convert thermal power plants in depurcogeproduction pool (DCPTCG) and therefore the cost of the new energy would, in fact, € 65 MWh, while the cost of capital, by virtue of more space occupied the major hydraulic works, civil and electromechanical we could assimilate a central biomass circulating fluidized bed ($ / kW.el. 3,580 = € 2,754), but with an efficiency superior to

any kind of power plant. Currently not comparable with any reality. If the combined cycle the EPRI table gives an efficiency of 47%, this should add at least as much value in efficiency due to the heat recovery water and smoke, the alkalize and purify the waters of CO2 from flue gas purification, the ability to produce biogas with lower percentage of CO2. All this means that we must add energy efficiency closely we need to add environmental efficiencies that today are variously throughout the area with very low yields and very high capital costs. Having no terms of comparison, we assimilate the cost of gas treatment, at a cost of calcium oxide (although much of the football will be extracted directly from the corrosion of the rocks, with environmental costs and lower energy). For the central 320 MW, as calculated above, the consumption of calcium oxide would be about 94 098 kg / h which round up to 100,000 kg / h to take account of the dispersions and multiply by 330 days. and 24 h and we will have a consumption of 792,000 T. year. Assuming the cost of calcium oxide equal € 100 / T.. This would have an impact of around € 33/MWh [100 * 792000 / (304 * 330 * 24)]. In addition, having calculated above a potential digestive national assets of € 363 452 775 T with an average of 30% dry and using 10% calcium to facilitate dewatering, stabilization and composting takes about 10,900,000 Tee calcium oxide (363,452,775 * 0.3 * 0.1), with a total cost of € 1.090.000.000, with an average incidence of about € 3,00 (1.090.000.000/363.000.000). Hence, the new energy costs, if they are wrong baseline data, taken from the table EPRI (developed by international experts), clean energy, produced entirely in Italy, without importing petroleum products and nuclear energy, purifying and non-polluting the environment is € 110/MWh (65 +33 +3.0 + unexpected rounded to € 9.0). But these costs would include also the partial purification, alkalinization of about 800 m3 / h of water / MWh (240.000/304), dehydration and stabilization and composting of about 0.19 T of dried mud / MWh produced [(6,933 * 0.20/24) / 304], estimated at ch. 25 and in the preceding pages. These

would not be a ballast to be incinerated, but a wealth to be distributed, being digested, stabilized and composted. But we also work activities that would take place behind this transformation of water purification systems and energy. Would be affected the whole society of the future.

Italy, now, is among the last in Europe in energy production from biomass. But, this could be a good thing, as it was fortunate to have abandoned nuclear power, before spending other resources. We would still have more debt than we have. The nuclear would produce greater amounts of steam without interacting with other systems to purify and alkalize the waters. With bad investments in the energy sector would have further increased our national debt, adding debt to debt to carry out works, uneconomic, harmful and dangerous, such as nuclear and CCS, artificial trees. Before we move in this strategic sector, which rightly is merged, under the ministry of the environment, we must recognize that, in reality, this ministry is run as if there were four different ministries: Water, water purification, waste disposal, energy. While research is a ministry in part, dependent on the Ministry of Education. None of these areas is working and never will be if you do not have been

grouped together, at least, all the functions of public plant design to recover wasted resources and close the carbon cycle. All public facilities are a source of enormous waste, which contribute significantly to the immense public debt. This applies to all countries. Italy Depurcogenerazione with the global system, extended to the whole country, could heal the huge public debt (2,000 billion euro) in a few years, leading to savings in all sectors. Only that it will take 40-50 years to change the systems in order to constitute a logical and rational water and air pollution, being everything to be redone. Another twenty years it will take to understand that manages the environment and those who teach in the

universities that the system is wrong. If even young people who will work in the future in the environmental sector are formed from the same school, it will take many more years. Currently global pollution are not protected nor urban environments or water bodies. Thermal power stations, waste energy and emit CO2 into the environment with double damage, environmental, and economic, as the CO2 a valuable resource wasted. Other energy production are not yet economically viable, but could do little to help heal the ocean waters that go to acidification. Above all, the global protection systems designed for cities, water bodies and DCPTCG show that it is necessary to create complete systems air purification, water, waste and where possible also to produce energy, to maximize returns and reduce emissions. If you do not want to understand these concepts, it is best to leave things as they are, that continue to make mistakes and charge the costs to taxpayers. Before creating other corporations such as notaries, taxi drivers, pharmacists, etc.. turning farmers into energy producers out of business, paying, until December 2012, 0.28 € / kwh, however emitting CO2 into the environment and waste heat, let us realize that with the costs of investments and management of much lower, we can achieve near-zero emissions and take advantage of all the heat, that for a century we waste in the waters of the seas, rivers and the atmosphere. G € 0.28 / kwh, paid in Italy (according to the law of 23 July 2009, n. 99) for the production of energy from biomass equivalent to 280 € / MWh, are very far from 110 € / MWh, calculated above, starting from the cost of the table EPRI, for an equivalent energy production which also includes the elimination of CO2 emissions, purification and alkalinization of immense flow of water, in addition to the liquid digestate. The reasons for which the system I propose, as well as more efficient is also cheaper, is very simple: you avoid the waste of energy, you leverage the power of the same pollutants for purifying, you avoid unnecessary duplication and less efficient. What are separate systems, which alone, unable to close the carbon cycle, are forced to emit pollution in the

environment and also cost more as investments and management? The Ministerial Decree of July 6, 2012 in the right reduction by lowering the cost of the incentives and encouraging research on the most comprehensive and cost. But who is to recognize them? If institutions of State in charge of the production and research in the field of energy, silent, facing the proposal DCPTCG.

Production costs in the table EPRI, Chapter 21, although calculated in 2008, referring to a 2015 estimate, are much lower than the costs charged in Italy. However, these costs do not include the reduction of CO2. If we assimilate the cost of capital DCPTCG with capital costs of biomass circulating fluidized bed, shown in the table (3,580 $ / kW), we realize this cost would be less than nuclear, solar thermal and solar power, but also include the reduction of CO2 and the water treatment The alcanizzazione of water bodies, the elimination of other costs of purification of water, air, incinerators and composting.

Paradoxically, if the distribuissimo 216,000,000 T. of digestible waste that are produced in Italy in plants DCPTCG of various sizes, according to the needs of the area, not only would save one-fifth of the country’s energy production, but shy away from the environment about 80 to 90% of all the CO2 produced by power plants involved (including those of fossil origin) and nutrients million m3 of river water lakes and coastal concerned with the process or through the facility only for cooling.

It should be understood that in the face of such a potential there is no reason to have in the country other systems of water purification and treatment of organic waste such as landfills, digesters and cogeneration plants that emit CO2 and

can not compete with the potential returns costs. The huge amount of digestible waste loading stations, operated by computer, would avoid accumulations smelly plants CDR and landfills. Would accumulate in silos only supplementary to the energy production plant saturation.

We could say that the new energies, even when simply lower capital costs at the same level of DCPTCG (See table EPRI, ch. 21), unable to perform the same functions of environmental protection, will never be competitive.

In Italy, if the waste could produce about 1/5 of the national energy, most likely the other four fifths them could produce from dedicated crops cereals that have not been considered quantitatively. These have an average production capacity of about 47 t / ha and a specific capacity of 389 m3 biogas / T biogas. So, one hectare of land has an average capacity production of 67,000 kW / year (47 * 389 * 6.7 * 0.55 kW/m3). Being the national demand 346,000 GW and the potential obtainable from waste of 72,000 GW, as calculated above, to produce the missing 274,000 GW take approximately 4,089,000 acres (274,000 GW/67.000 kW). Whereas the arable land in Italy is about 13 million and two hundred thousand acres, we could also assume a complete energy independence if most of the resources should not go wasted and many uncultivated land were not for many reasons on which you do not want to investigate. Among energy crops “dedicated” to the production of biogas, using in particular maize, sorghum, triticale, sunflower. It is all plants belonging to the grass family, characterized by good crop yields, by rapid growth, adaptability to different types of terrain and a high percentage of dry matter.

27) The projections detoxing DCPTCG in Italy.

The natural energy source, which would return the nutrients to the land and the seas carbonates in the right dosage without CO2 emissions, it would be just that through depurcogeproduction thermoelectric plants covered global (DCPTCG), which do not yet exist, but they are at hand with existing technology. But if in the future people will realize that the best way to produce sustainable energy and that through the production of bio fuels, they can not delude themselves to carry out the purges through the existing purification systems, who can not even dispose of urban pollution, comparable the hundredth part of the future purification requirements. For this it is essential to global depurcogeproduction thermalcovered, which uses the emission of pollutants from DDCL and CO2 in buildings synergistic vertical (FSV), as nutrients to produce biomass terrestrial and aquatic, discharging only treated water and alkalized, if necessary, desalinated. We will in addition to CO2 (carbon fertilization) large amounts of compost and digestate liquid are immense energy and environmental resources, that the current environmental culture is unprepared to handle.

Do not delude ourselves that with the new energies we solved the energy and environmental problems. Missing the best: Who closes the carbon cycle? Who protects the oceans, water bodies, groundwater? Certainly not water purifiers. They never did and never will. With the DCPTCG, environmental purification, including the consumption of CO2, would be included in the price of energy produzine.

Even the urban sewage kept fresh through the treatment sewer ignored by the environmental authorities, may be accepted free of charge as nutrients for biomass in DCPTCG Let’s see what we mean.

In the Bel Paese coverage of sewerage services is 84, 7% (data Blue Book Report Anea 2009) The sewage treatment plants treat approximately 69,000,000 inhabitants equivalent. The water that goes into public networks in a year is about 8 billion m3, the one that comes from the taps is approximately 5.45 billion (44.6% lost), one that is purified is about 70.4% of the latter (3.83 billion m3). 44.7% (1.71 billion m3) has the privilege of being subjected to a purification treatment up to the tertiary sector, 49% secondary treatment; 6.3% primary treatment. In the event that the realizzassimo depurcogenerazione covered global turning each of the Italian power plants, which according to the table above have a potential of 50,835 MWh, we would need to circulate annually through the plants at least the following quantities of water not related to the current purifications:

the cooling waters of the central and smoke: [(50.835/320) * (40,432 * 24 * 365 * 55/40)]. = 77.365 billion m3;

condensate water contained in the flue gas of power plants: [(50.835/320) * (105 * 24 * 365 * 55/40)]. = 200 million m3;

Waters digestate; [(50835/320) * (400 * 365/15)]. = 1,540,000 m3;

The total amount is 77.58 billion m3 per year, but in the example of designing the “thermalcovered depurcogeproduction global” 320 MWh, we saw that in order to neutralize the CO2 when the energy production does not require fertilizing carbon we need to pass a lot more water in plants: about 460 billion m3 per year [(50.835/320) * (240,000 * 24 * 365 * 55/40)]. Besides, this greater capacity would serve to better cool the smoke and the cooling waters of power plants.

In the face of these values, we must recognize that we are dealing with water (3.83 billion m3/year) in Italy, without even alcalinizzarle, do not even tickle the major environmental problems that we have globally. But, as mentioned, increasing the flow rates will also benefit water bodies and coastal areas, because the water must be treated like we do not currently acidificandole and emitting a load in the environment, inorganic, such as CO2, which causes reabsorbed from the further pollution and acidification. Hypocritically, we make only a few analyzes of purified water, neglecting the value alkaline. The treated water should have precise physical chemical characteristics, appropriate to the receiving water body and circular actively participating in the global carbon cycle and global climate thermo regulation (which also affects the ocean currents, the melting of glaciers, typhoons, floods , etc.). Not be said that no protection of the environment because it costs too much, because it is not true. It would cost a lot more C.C.S. who want to implement, which, of course, will not correct the alkalinity, or cool waters. Even those that already pass through the CTE The water that we treat are currently only 0.8% of those that come out from the introduction DCPTCG nationwide. This small percentage, since during the local treatment, in general, is acidified without correction and involves emission of CO2, for the purpose of global pollution, only leads to a deterioration of the environment. So, if the legislature intended to account for global pollution should require treatment other than current and alkalinity parameters adapted to the local characteristics. In principle, the urban water may be pre-treated sewage in the sewer system and complete the purification and alkalinization passing through the purifiers covered or buildings synergistic vertical (FSV) without further treatment, completely eliminating the current purifiers, which are not designed in order to contribute to global environmental purification. They are not designed to consume CO2, indeed the issue, nor produce biomass and even to withstand the changes in hydraulic loads: spilling untreated

sewage into water bodies in conditions far worse than when they were welcomed into the sewer.

The 460 billion m3/year, estimated, or about 14,560 m3/sec, equal to ten times the average flow of the Po (1540 m3/sec) must simply go through the facilities DCPTCG cool the warm waters heated by CTE consume the nutrients and CO2 and suffer through the alkalinization SCMCV Only a small percentage of these waters, the most polluted, amounting to about 10 billion m3 per year will be diverted in SBFSCV to be purified in a more intensive, before being inserted in the SCMCV (Ponds covered carbonation mechanized vertical) to exit permanently from the ski and continue to water bodies.

Obviously, to address this great need, a part of this water will be continually recycled in the plant and a part can be taken from the sea (mainly used for cooling). The amount of CO2 to be removed, based on the proportion always with the CTE 320 MWh taken as an example, could be: [(50.835/320) * (649,000 * 55/40)] = 141 762 692 T / year, equivalent to about a quarter of national production in the fortunate event that all plants were transformed to methane. If we divide the amount of CO2 to the amount of water that would pass through the plant, bringing all in tons (141.762.692/460.000.000.000), we have a relationship equal to 0.00308 T / T = 3.08 g / L. As already written, at room temperature and at atmospheric pressure, the water is not able to absorb more carbon dioxide than they normally contains according to their salinity balance. If we insist to administer CO2 in the water, about 1% is converted into carbonic acid (CO2 + H2O → H2CO3), the rest is returned to the atmosphere, where it participates actively to the greenhouse effect. Allow the water to absorb the CO2, without return to the atmosphere, it is necessary to increase the alkalinity of the water, ie the content of calcium carbonate (CO2 + Ca + + + 2OH − ⇄ CaCO3 + H20), which

increases the carbonate hardness of ‘water, or you have to start a process that transforms the photosynthetic CO2 into sugars and oxygen. These processes can not get them in the open, but in an environment created specially in FSV, where the greatest concentration of CO2 favors the absorption, according to the laws of Dalton and Henry, increasing the yield of these reactions. The CO2 dissolved in the water in the pool, but not transformed into bicarbonate, the output of the plant is returned immediately from the water to the atmosphere. To facilitate this absorption requires large volumes of water, large air flow rates and large areas of contact with the limestone. And ‘This is the reason why this system is also purifies the air that, in addition to CO2, it also contains other gases and fine particles that escape the flue gas cleaning.

28) The economy of calcium and water in the basins and manufactured gases covered.

To combat global warming and ocean acidification dehydrate and stabilize the sludge must consume much calcium oxide. To spare them, as well as achieve “biological ponds covered with limestone warehouse vertical” (SCMCV), we have to step up production of photosynthetic biomass covered through the “mechanized production greenhouses covered vertical” (SMPCV) and “biological ponds covered optional vertical “(SBFSCV). We do everything together in buildings synergistic vertical (FSV). We also need to avoid unnecessary and harmful combustion, producing more CO2. The combustion eligible will be those necessary to produce energy from renewable sources. The recovery cycles of heat and CO2 must continue beyond the combustion for the production of biomass that will be used to produce energy in a closed cycle and infinite. The system choices environmental remote and recent past have neglected the closure of the carbon cycle. You are dragged behind a

polluting industrial development and energy and it has become increasingly difficult to recognize the errors to regain control of the situation. Were invested huge capital to produce plant and machinery, which in a logic of global purification, do not serve; chemical fertilizers that could very well be replaced or supplemented by digestates dehydrated and stabilized; clean energy expensive, which although useful, is not participating in the cycle carbon should be resized in expectations. The solar and wind energy, if we look at the table EPRI costs (Chapter 21), shown in the preceding pages, are extremely expensive compared to gas combined cycle (and they will be even more with the depurcogenerazionecovered which, together, will double current yields). But the new energies are just born and already scarce essential elements for the production of the main components (tellurium, indium, gallium, neodymium, dysprosium). Can not be accidental that the current purification systems, have consumed, in more than 100 years, billions of billions of dollars and do not subtract one gram of CO2 to the environment, or rather the increase. While the future purifiers, according to the undersigned, will be the protagonists not only in the reduction of CO2 but also dell'alcalinizzazione of ocean water, doubling the efficiency of thermal power plants, increased production of biomass, the fight against desertification, both producing compost, both desalinizzando marine waters, as described in section. 30. This simple and straightforward logic of the treatment processes and energy, inextricably linked in the global facilities, should be taught to those who govern the environment which is the sustainable road to follow. In 2013, in the face of global warming and the global economic crisis, it would be logical to report on the state of the global environmental protection, eliminating the superfluous and focusing only on sustainable systems that can reduce the softening of the ocean waters and the heating of the planet. Ben are solar panels (also installed on the roofs of purifiers are covered) and the wind turbines that will reduce emissions of CO2 and heat, but the greatest contribution we should

expect from the global depurcogenerazione covered, the only one that can hold water and air pollution but also turn it into clean energy limiting ocean acidification that develops with laws that exceed ten times the mathematical models, even exponential, prepared by scientists. As the depurcogenerazione covered in FSV require major works, will occupy space about fifteen times lower forests that are disappearing, but will be thousands of times more efficient, fully closing the carbon cycle, while leaving out a part for reasons of space and cost. We must not be content with the fact that producing and consuming biogas we do not increase the overall percentage of CO2 in the environment. Where we have opportunity, we must consume more CO2 than we produce. With “depurcogenerazione covered global”, as we have seen, we can consume fossil fuels and produce biogas, but if producessimo and manged only biogas, it will take us in a position to steal the environment in a sustainable way more CO2 than we produce, moreover eliminating and alkalinizing the waters. This is worth much more than any CCS and the concept of global purification, is to the benefit of other industrial and urban environments where it is difficult and expensive to subtract CO2.

The event azolla shows that we can sequester CO2 with the only photosynthesis, but in the case of biological ponds, we must avoid the death of the seabed due to sediment and in the case of intensive production of biomass, we need to avoid pollution of groundwater, moving above ground most of the production in buildings synergistic vertical (FSV) where the water can be recovered, purified and reused. As we have seen, low efficiency of photosynthesis can be increased in the greenhouses and the purifying of biological ponds mechanically by circulating the baskets with ionized resin. So, in the long run, it is dangerous for the environment intensify the production of aquatic and terrestrial plants, which can not be controlled the pollution of the water and seabed. Let us work safely agricultural fields and intensify the production off

the ground in the FSV. The larger the basins and the greenhouses, the greater the amount of rocks stored, the greater the contact surface, the greater the amount of carbonates transported to the oceans and CO2 absorbed. If necessary, into the basin below you may also carry out photosynthesis ensuring an artificial light. For photosynthesis, we know that we need to ensure the stagnation of surface water to a rotating crops of aquatic plants, seamlessly. These come and go in cycles of ten – fifteen days, consuming nutrients and producing sludge that would be extracted and transferred to the anaerobic digesters linear (DDCL). The CO2 content in the S.C.M.C.V. not absorbed by these processes, it may be recalled along with the air that contains the biological ponds optional vertical and covered by the mechanized production greenhouses covered vertical (SBFSCV – SMPCV) where will the bulk of the water purification and the bulk of the biomass production energy, they also transferred to DDCL, where would materialize heat recovery and flue gas CO2 into biogas without polluting the environment. For the sizing of a D.C.P.T.C.G. of the potential of 320 MWh we talked about the needs of about 94 098 kg / h of calcium oxide that require approximately 240,000,000 L / h of water to be absorbed in a rational way for the environment, so that, in addition to producing clean energy also protect the environment by preventing ocean acidification. Proponents of the current environmental palliatives, have rejoiced thinking that these facilities it will be difficult to achieve. In many cases we will not have the capacities required. Unfortunately it is true, in many cases and in many countries we could be in trouble for the deficiencies of either or both. But opponents of the silent treatment globally, can not rejoice too, because even we can desalinate sea water and use it in circulation (see chap. 30). Suppose we have available only 40,432,236 L / h of cooling water of the central or less the same (if the water is cooled with cooling towers and partially recovered. DCPTCG In this case the system, as described dimensioned and can be manufactured but also handled differently. Being a

multipurpose: water and calcium can be economized ricircolandoli plant reducing the range. So, we will be forced to give up, in part, to the important function of carrying carbonates to the sea, but also with lower hydraulic works, we clean energy, we will increase the returns will produce extra energy, all other functions remain the same.

We have seen that the plant is divided into 20 sections which have perfectly identical basins of water flow from alkalize (braa) connected in parallel. The speech would also be true for a number of lower sections. In the absence of water and calcium, connecting the basins in series and reversing the direction of flow when it reaches the saturation calcium in the basins end, we could work equally. Indeed, in the absence of flow of water needed to keep the CO2 in solution and the calcium, the concentration of this increases causing the transformation of soluble bicarbonate insoluble carbonate. Accordingly, extracting the precipitated carbonates, the water of the basin (braa) is softened rapidly, restoring back the absorption capacity, of both calcium both of CO2, as described in Chapters 15 (The carbonation of cold limestone) and 17 (Even the fumes may pose an environmental resource). With this type of management, at least for the river ends, you will be interested in this phenomenon, agree recover the precipitated calcium, and dried, can produce calcium oxide with lower costs and CO2 emissions than by heating the rocks. As we said, the vast majority of the impurities in the source rocks has been retained in the hanging baskets with double bottom ball. Of course, the waters that come out of the DCPTCG will be deducted from the docks (braa) plants, which do not have water with pH values □□altered.

29) The patents and designs D.C.P.T.C.G.

To make it easier to understand the foregoing, Attached are the following drawings:

– Block diagram of the carbon cycle extracted from the on-line publication: http://www.google.it/imgres?imgurl=http://www.co2club.it/UserFiles/image/itco2/ciclo% 2520carbonio.

– Block diagram of the carbon cycle anthropic developed by myself, including the global water treatment and energy in protecting the environment.

– N. 4 summarized deposits of national patent (still new, but at the time, humiliated).

– Flow diagram of thermal power plant depurcogeproduction covered global DCPTCG

– Longitudinal section D.C.P.T.C.G. on the sector D.D.C.L.

– Cross-section system D.C.P.T.C.G. on sectors F.S.V. and D.D.C.L.

Below is a legend alphabetic with the meaning of the symbols shown on the drawings.

Legend: (aa) alimentaione alkaline water; (AALR) water washing resins; (acf) arrival sewer; (ad) alimentaione water decarbonata (agf) agitator sludge; (bam) bilancella equipped

motorized; (braa) water collection basin to alkalize , (brad) basin collecting water to be purified; (cbio) biogas collector; (ics) bagged compost; (CIM) body of water upstream; (Civil) water body downstream; (CTEbio) thermal power plant fueled with biogas (CRD bio) chimney flue gas treatment and recovery biofuels; (CRDfos) chimney recovery and flue gas cleaning fossil fuels; (CPCC) calcareous wheeled hanging baskets; (CpRC) door hanging baskets trolley resins; (crp) channel stones collection; (dg) digester (eva) electric fan for air; (evf) electric fan for fume (FFCT) thermal power plant flue gas filtration; (fcb) cyclone filter for biogas (Ftac) tube hot water; (gp) bridge cranes; (ITfos) thermal plant fossil; (MSCB) elevator sorting racks and racks; (ntm) tape transport sludge; (plv) rain; (ps) solar panels; (psa) pump lifting water; (PSAC) lifting pump hot water; (psf) lift pump sludge; (pst) transparent solar panels; (sca) lime silo; (scmcv) biological pond and limestone covered mechanized vertical (sbm) silo biomass; (sbfscv) biological pond covered following optional vertical (sbffcv) optional final biological pond covered vertical (scmcv) emissions covered limestone mechanized vertical (SCAA) water heat exchanger water; (SCAAR) air-water heat exchanger; (SCFA) flue gas heat exchanger water; (scFv) flue gas heat exchanger steam (SCVA) heat exchanger water vapor; (DFT) tank for sludge thickening transit; (smpcv) greenhouse mechanized production covered vertical (SREA) air inlet damper; (sif) smoke damper interception; (src) condensate collection tank; (ssa) anionic detergent solution; (ssc) cationic detergent solution; (tlr) tunnel washing resins; (tor) torch; (tpbio) pneumatic conveying biomass; (tlfr) tunnel final wash resins; (between) tunnel Regeneration anionic, (trc) cationic tunnel regeneration; (TRFA) hopper for thickened sludge; (tRCD) hopper digesters; (TRMC) hopper limestone boulders; (trr) tunnel resin regeneration; (ua) air outlet; (uta) air handling units; (vas) trays for water overflow; (vsa) stairwell and elevator; (vsd) purified water drain valve; (vrc) shut-off valve recirculating water; (zcsbc) covered area sorting racks

and baskets .

26) THE COST OF D.C.P.T.C.G.

With this solution, which would allow the recovery of the heat of the thermal power, in fact, we would have cleared the costs of digestion of energy matrices that are worth at least 40% of the cost of production from biomass in Table EPRI (Sec. 21), then we can say that the energy cost, when fully operational, with all the appropriate facilities and no emissions, it could lower by 40% compared to $ 83.5 average rates, which are about EUR € 65 MWh. To simplify the calculations, we assume that these savings will be fully invested to convert thermal power plants in depurcogeproduction pool (DCPTCG) and therefore the cost of the new energy would, in fact, € 65 MWh, while the cost of capital, by virtue of more space occupied the major hydraulic works, civil and electromechanical we could assimilate a central biomass circulating fluidized bed ($ / kW.el. 3,580 = € 2,754), but with an efficiency superior to any kind of power plant. Currently not comparable with any reality. If the combined cycle the EPRI table gives an efficiency of 47%, this should add at least as much value in efficiency due to the heat recovery water and smoke, the alkalize and purify the waters of CO2 from flue gas purification, the ability to produce biogas with lower percentage of CO2. All this means that we must add energy efficiency closely we need to add environmental efficiencies that today are variously throughout the area with very low yields and very high capital costs. Having no terms of comparison, we assimilate the cost of gas treatment, at a cost of calcium oxide (although much of the football will be extracted directly from the corrosion of the rocks, with environmental costs and lower energy). For the central 320 MW,

as calculated above, the consumption of calcium oxide would be about 94 098 kg / h which round up to 100,000 kg / h to take account of the dispersions and multiply by 330 days. and 24 h and we will have a consumption of 792,000 T. year. Assuming the cost of calcium oxide equal € 100 / T.. This would have an impact of around € 33/MWh [100 * 792000 / (304 * 330 * 24)]. In addition, having calculated above a potential digestive national assets of € 363 452 775 T with an average of 30% dry and using 10% calcium to facilitate dewatering, stabilization and composting takes about 10,900,000 Tee calcium oxide (363,452,775 * 0.3 * 0.1), with a total cost of € 1.090.000.000, with an average incidence of about € 3,00 (1.090.000.000/363.000.000). Hence, the new energy costs, if they are wrong baseline data, taken from the table EPRI (developed by international experts), clean energy, produced entirely in Italy, without importing petroleum products and nuclear energy, purifying and non-polluting the environment is € 110/MWh (65 +33 +3.0 + unexpected rounded to € 9.0). But these costs would include also the partial purification, alkalinization of about 800 m3 / h of water / MWh (240.000/304), dehydration and stabilization and composting of about 0.19 T of dried mud / MWh produced [(6,933 * 0.20/24) / 304], estimated at ch. 25 and in the preceding pages. These would not be a ballast to be incinerated, but a wealth to be distributed, being digested, stabilized and composted. But we also work activities that would take place behind this transformation of water purification systems and energy. Would be affected the whole society of the future.

Italy, now, is among the last in Europe in energy production from biomass. But, this could be a good thing, as it was fortunate to have abandoned nuclear power, before spending other resources. We would still have more debt than we have. The nuclear would produce greater amounts of steam without interacting with other systems to purify and alkalize the waters. With bad investments in the energy sector would have

further increased our national debt, adding debt to debt to carry out works, uneconomic, harmful and dangerous, such as nuclear and CCS, artificial trees. Before we move in this strategic sector, which rightly is merged, under the ministry of the environment, we must recognize that, in reality, this ministry is run as if there were four different ministries: Water, water purification, waste disposal, energy. While research is a ministry in part, dependent on the Ministry of Education. None of these areas is working and never will be if you do not have been grouped together, at least, all the functions of public plant design to recover wasted resources and close the carbon cycle. All public facilities are a source of enormous waste, which contribute significantly to the immense public debt. This applies to all countries. Italy Depurcogenerazione with the global system, extended to the whole country, could heal the huge public debt (2,000 billion euro) in a few years, leading to savings in all sectors. Only that it will take 40-50 years to change the systems in order to constitute a logical and rational water and air pollution, being everything to be redone. Another twenty years it will take to understand that manages the environment and those who teach in the universities that the system is wrong. If even young people who will work in the future in the environmental sector are formed from the same school, it will take many more years. Currently global pollution are not protected nor urban environments or water bodies. Thermal power stations, waste energy and emit CO2 into the environment with double damage, environmental, and economic, as the CO2 a valuable resource wasted. Other energy production are not yet economically viable, but could do little to help heal the ocean waters that go to acidification. Above all, the global protection systems designed for cities, water bodies and DCPTCG show that it is necessary to create complete systems air purification, water, waste and where possible also to produce energy, to maximize returns and reduce emissions. If you do not want to understand these concepts, it is best to leave things as they are, that continue to make mistakes and charge the costs to taxpayers.

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Production costs in the table EPRI, Chapter 21, although calculated in 2008, referring to a 2015 estimate, are much lower than the costs charged in Italy. However, these costs do not include the reduction of CO2. If we assimilate the cost of capital DCPTCG with capital costs of biomass circulating fluidized bed, shown in the table (3,580 $ / kW), we realize this cost would be less than nuclear, solar thermal and solar

power, but also include the reduction of CO2 and the water treatment The alcanizzazione of water bodies, the elimination of other costs of purification of water, air, incinerators and composting.

Paradoxically, if the distribuissimo 216,000,000 T. of digestible waste that are produced in Italy in plants DCPTCG of various sizes, according to the needs of the area, not only would save one-fifth of the country's energy production, but shy away from the environment about 80 to 90% of all the CO2 produced by power plants involved (including those of fossil origin) and nutrients million m3 of river water lakes and coastal concerned with the process or through the facility only for cooling.

It should be understood that in the face of such a potential there is no reason to have in the country other systems of water purification and treatment of organic waste such as landfills, digesters and cogeneration plants that emit CO2 and can not compete with the potential returns costs. The huge amount of digestible waste loading stations, operated by computer, would avoid accumulations smelly plants CDR and landfills. Would accumulate in silos only supplementary to the energy production plant saturation.

We could say that the new energies, even when simply lower capital costs at the same level of DCPTCG (See table EPRI, ch. 21), unable to perform the same functions of environmental protection, will never be competitive.

In Italy, if the waste could produce about 1/5 of the national energy, most likely the other four fifths them could produce from dedicated crops cereals that have not been considered

quantitatively. These have an average production capacity of about 47 t / ha and a specific capacity of 389 m3 biogas / T biogas. So, one hectare of land has an average capacity production of 67,000 kW / year (47 * 389 * 6.7 * 0.55 kW/m3). Being the national demand 346,000 GW and the potential obtainable from waste of 72,000 GW, as calculated above, to produce the missing 274,000 GW take approximately 4,089,000 acres (274,000 GW/67.000 kW). Whereas the arable land in Italy is about 13 million and two hundred thousand acres, we could also assume a complete energy independence if most of the resources should not go wasted and many uncultivated land were not for many reasons on which you do not want to investigate. Among energy crops “dedicated” to the production of biogas, using in particular maize, sorghum, triticale, sunflower. It is all plants belonging to the grass family, characterized by good crop yields, by rapid growth, adaptability to different types of terrain and a high percentage of dry matter.

27) THE POTENTIAL OF DCPTCG TO DETOXIFY ITALY

The natural energy source, which would return the nutrients to the land and the seas carbonates in the right dosage without CO2 emissions, it would be just that through depurcogeproduction thermoelectric plants covered global (DCPTCG), which do not yet exist, but they are at hand with existing technology. But if in the future people will realize that the best way to produce sustainable energy and that through the production of bio fuels, they can not delude themselves to carry out the purges through the existing purification systems, who can not even dispose of urban pollution, comparable the hundredth part of the future

purification requirements. For this it is essential to global depurcogeproduction thermalcovered, which uses the emission of pollutants from DDCL and CO2 in buildings synergistic vertical (FSV), as nutrients to produce biomass terrestrial and aquatic, discharging only treated water and alkalized, if necessary, desalinated. We will in addition to CO2 (carbon fertilization) large amounts of compost and digestate liquid are immense energy and environmental resources, that the current environmental culture is unprepared to handle.

Do not delude ourselves that with the new energies we solved the energy and environmental problems. Missing the best: Who closes the carbon cycle? Who protects the oceans, water bodies, groundwater? Certainly not water purifiers. They never did and never will. With the DCPTCG, environmental purification, including the consumption of CO2, would be included in the price of energy produzine.

Even the urban sewage kept fresh through the treatment sewer ignored by the environmental authorities, may be accepted free of charge as nutrients for biomass in DCPTCG Let’s see what we mean.

In the Bel Paese coverage of sewerage services is 84, 7% (data Blue Book Report Anea 2009) The sewage treatment plants treat approximately 69,000,000 inhabitants equivalent. The water that goes into public networks in a year is about 8 billion m3, the one that comes from the taps is approximately 5.45 billion (44.6% lost), one that is purified is about 70.4% of the latter (3.83 billion m3). 44.7% (1.71 billion m3) has the privilege of being subjected to a purification treatment up to the tertiary sector, 49% secondary treatment; 6.3% primary treatment. In the event that the realizzassimo depurcogenerazione covered global turning each of the Italian

power plants, which according to the table above have a potential of 50,835 MWh, we would need to circulate annually through the plants at least the following quantities of water not related to the current purifications:

the cooling waters of the central and smoke: [(50.835/320) * (40,432 * 24 * 365 * 55/40)]. = 77.365 billion m3;

condensate water contained in the flue gas of power plants: [(50.835/320) * (105 * 24 * 365 * 55/40)]. = 200 million m3;

Waters digestate; [(50835/320) * (400 * 365/15)]. = 1,540,000 m3;

The total amount is 77.58 billion m3 per year, but in the example of designing the “thermalcovered depurcogeproduction global” 320 MWh, we saw that in order to neutralize the CO2 when the energy production does not require fertilizing carbon we need to pass a lot more water in plants: about 460 billion m3 per year [(50.835/320) * (240,000 * 24 * 365 * 55/40)]. Besides, this greater capacity would serve to better cool the smoke and the cooling waters of power plants.

In the face of these values, we must recognize that we are dealing with water (3.83 billion m3/year) in Italy, without even alcalinizzarle, do not even tickle the major environmental problems that we have globally. But, as mentioned, increasing the flow rates will also benefit water bodies and coastal areas, because the water must be treated like we do not currently acidificandole and emitting a load in the environment, inorganic, such as CO2, which causes reabsorbed from the further pollution and acidification.

Hypocritically, we make only a few analyzes of purified water, neglecting the value alkaline. The treated water should have precise physical chemical characteristics, appropriate to the receiving water body and circular actively participating in the global carbon cycle and global climate thermo regulation (which also affects the ocean currents, the melting of glaciers, typhoons, floods , etc.). Not be said that no protection of the environment because it costs too much, because it is not true. It would cost a lot more C.C.S. who want to implement, which, of course, will not correct the alkalinity, or cool waters. Even those that already pass through the CTE The water that we treat are currently only 0.8% of those that come out from the introduction DCPTCG nationwide. This small percentage, since during the local treatment, in general, is acidified without correction and involves emission of CO2, for the purpose of global pollution, only leads to a deterioration of the environment. So, if the legislature intended to account for global pollution should require treatment other than current and alkalinity parameters adapted to the local characteristics. In principle, the urban water may be pre-treated sewage in the sewer system and complete the purification and alkalinization passing through the purifiers covered or buildings synergistic vertical (FSV) without further treatment, completely eliminating the current purifiers, which are not designed in order to contribute to global environmental purification. They are not designed to consume CO2, indeed the issue, nor produce biomass and even to withstand the changes in hydraulic loads: spilling untreated sewage into water bodies in conditions far worse than when they were welcomed into the sewer.

The 460 billion m3/year, estimated, or about 14,560 m3/sec, equal to ten times the average flow of the Po (1540 m3/sec) must simply go through the facilities DCPTCG cool the warm waters heated by CTE consume the nutrients and CO2 and suffer through the alkalinization SCMCV Only a small percentage of

these waters, the most polluted, amounting to about 10 billion m3 per year will be diverted in SBFSCV to be purified in a more intensive, before being inserted in the SCMCV (Ponds covered carbonation mechanized vertical) to exit permanently from the ski and continue to water bodies.

Obviously, to address this great need, a part of this water will be continually recycled in the plant and a part can be taken from the sea (mainly used for cooling). The amount of CO2 to be removed, based on the proportion always with the CTE 320 MWh taken as an example, could be: [(50.835/320) * (649,000 * 55/40)] = 141 762 692 T / year, equivalent to about a quarter of national production in the fortunate event that all plants were transformed to methane. If we divide the amount of CO2 to the amount of water that would pass through the plant, bringing all in tons (141.762.692/460.000.000.000), we have a relationship equal to 0.00308 T / T = 3.08 g / L. As already written, at room temperature and at atmospheric pressure, the water is not able to absorb more carbon dioxide than they normally contains according to their salinity balance. If we insist to administer CO2 in the water, about 1% is converted into carbonic acid (CO2 + H2O → H2CO3), the rest is returned to the atmosphere, where it participates actively to the greenhouse effect. Allow the water to absorb the CO2, without return to the atmosphere, it is necessary to increase the alkalinity of the water, ie the content of calcium carbonate (CO2 + Ca + + + 2OH − ⇄ CaCO3 + H20), which increases the carbonate hardness of ‘water, or you have to start a process that transforms the photosynthetic CO2 into sugars and oxygen. These processes can not get them in the open, but in an environment created specially in FSV, where the greatest concentration of CO2 favors the absorption, according to the laws of Dalton and Henry, increasing the yield of these reactions. The CO2 dissolved in the water in the pool, but not transformed into bicarbonate, the output of the plant is returned immediately from the water to the

atmosphere. To facilitate this absorption requires large volumes of water, large air flow rates and large areas of contact with the limestone. And ‘This is the reason why this system is also purifies the air that, in addition to CO2, it also contains other gases and fine particles that escape the flue gas cleaning.

28) THE ECONOMY OF CALCIUM AND WATER I THE BASINS AND MANUFACTURED GASES COVERED

To combat global warming and ocean acidification dehydrate and stabilize the sludge must consume much calcium oxide. To spare them, as well as achieve “biological ponds covered with limestone warehouse vertical” (SCMCV), we have to step up production of photosynthetic biomass covered through the “mechanized production greenhouses covered vertical” (SMPCV) and “biological ponds covered optional vertical “(SBFSCV). We do everything together in buildings synergistic vertical (FSV). We also need to avoid unnecessary and harmful combustion, producing more CO2. The combustion eligible will be those necessary to produce energy from renewable sources. The recovery cycles of heat and CO2 must continue beyond the combustion for the production of biomass that will be used to produce energy in a closed cycle and infinite. The system choices environmental remote and recent past have neglected the closure of the carbon cycle. You are dragged behind a polluting industrial development and energy and it has become increasingly difficult to recognize the errors to regain control of the situation. Were invested huge capital to produce plant and machinery, which in a logic of global

purification, do not serve; chemical fertilizers that could very well be replaced or supplemented by digestates dehydrated and stabilized; clean energy expensive, which although useful, is not participating in the cycle carbon should be resized in expectations. The solar and wind energy, if we look at the table EPRI costs (Chapter 21), shown in the preceding pages, are extremely expensive compared to gas combined cycle (and they will be even more with the depurcogenerazionecovered which, together, will double current yields). But the new energies are just born and already scarce essential elements for the production of the main components (tellurium, indium, gallium, neodymium, dysprosium). Can not be accidental that the current purification systems, have consumed, in more than 100 years, billions of billions of dollars and do not subtract one gram of CO2 to the environment, or rather the increase. While the future purifiers, according to the undersigned, will be the protagonists not only in the reduction of CO2 but also dell'alcalinizzazione of ocean water, doubling the efficiency of thermal power plants, increased production of biomass, the fight against desertification, both producing compost, both desalinizzando marine waters, as described in section. 30. This simple and straightforward logic of the treatment processes and energy, inextricably linked in the global facilities, should be taught to those who govern the environment which is the sustainable road to follow. In 2013, in the face of global warming and the global economic crisis, it would be logical to report on the state of the global environmental protection, eliminating the superfluous and focusing only on sustainable systems that can reduce the softening of the ocean waters and the heating of the planet. Ben are solar panels (also installed on the roofs of purifiers are covered) and the wind turbines that will reduce emissions of CO2 and heat, but the greatest contribution we should expect from the global depurcogenerazione covered, the only one that can hold water and air pollution but also turn it into clean energy limiting ocean acidification that develops with laws that exceed ten times the mathematical models, even

exponential, prepared by scientists. As the depurcogenerazione covered in FSV require major works, will occupy space about fifteen times lower forests that are disappearing, but will be thousands of times more efficient, fully closing the carbon cycle, while leaving out a part for reasons of space and cost. We must not be content with the fact that producing and consuming biogas we do not increase the overall percentage of CO2 in the environment. Where we have opportunity, we must consume more CO2 than we produce. With “depurcogenerazione covered global”, as we have seen, we can consume fossil fuels and produce biogas, but if producessimo and manged only biogas, it will take us in a position to steal the environment in a sustainable way more CO2 than we produce, moreover eliminating and alkalinizing the waters. This is worth much more than any CCS and the concept of global purification, is to the benefit of other industrial and urban environments where it is difficult and expensive to subtract CO2.

The event azolla shows that we can sequester CO2 with the only photosynthesis, but in the case of biological ponds, we must avoid the death of the seabed due to sediment and in the case of intensive production of biomass, we need to avoid pollution of groundwater, moving above ground most of the production in buildings synergistic vertical (FSV) where the water can be recovered, purified and reused. As we have seen, low efficiency of photosynthesis can be increased in the greenhouses and the purifying of biological ponds mechanically by circulating the baskets with ionized resin. So, in the long run, it is dangerous for the environment intensify the production of aquatic and terrestrial plants, which can not be controlled the pollution of the water and seabed. Let us work safely agricultural fields and intensify the production off the ground in the FSV. The larger the basins and the greenhouses, the greater the amount of rocks stored, the greater the contact surface, the greater the amount of carbonates transported to the oceans and CO2 absorbed. If

necessary, into the basin below you may also carry out photosynthesis ensuring an artificial light. For photosynthesis, we know that we need to ensure the stagnation of surface water to a rotating crops of aquatic plants, seamlessly. These come and go in cycles of ten – fifteen days, consuming nutrients and producing sludge that would be extracted and transferred to the anaerobic digesters linear (DDCL). The CO2 content in the S.C.M.C.V. not absorbed by these processes, it may be recalled along with the air that contains the biological ponds optional vertical and covered by the mechanized production greenhouses covered vertical (SBFSCV – SMPCV) where will the bulk of the water purification and the bulk of the biomass production energy, they also transferred to DDCL, where would materialize heat recovery and flue gas CO2 into biogas without polluting the environment. For the sizing of a D.C.P.T.C.G. of the potential of 320 MWh we talked about the needs of about 94 098 kg / h of calcium oxide that require approximately 240,000,000 L / h of water to be absorbed in a rational way for the environment, so that, in addition to producing clean energy also protect the environment by preventing ocean acidification. Proponents of the current environmental palliatives, have rejoiced thinking that these facilities it will be difficult to achieve. In many cases we will not have the capacities required. Unfortunately it is true, in many cases and in many countries we could be in trouble for the deficiencies of either or both. But opponents of the silent treatment globally, can not rejoice too, because even we can desalinate sea water and use it in circulation (see chap. 30). Suppose we have available only 40,432,236 L / h of cooling water of the central or less the same (if the water is cooled with cooling towers and partially recovered. DCPTCG In this case the system, as described dimensioned and can be manufactured but also handled differently. Being a multipurpose: water and calcium can be economized ricircolandoli plant reducing the range. So, we will be forced to give up, in part, to the important function of carrying carbonates to the sea, but also with lower hydraulic works, we

clean energy, we will increase the returns will produce extra energy, all other functions remain the same.

We have seen that the plant is divided into 20 sections which have perfectly identical basins of water flow from alkalize (braa) connected in parallel. The speech would also be true for a number of lower sections. In the absence of water and calcium, connecting the basins in series and reversing the direction of flow when it reaches the saturation calcium in the basins end, we could work equally. Indeed, in the absence of flow of water needed to keep the CO2 in solution and the calcium, the concentration of this increases causing the transformation of soluble bicarbonate insoluble carbonate. Accordingly, extracting the precipitated carbonates, the water of the basin (braa) is softened rapidly, restoring back the absorption capacity, of both calcium both of CO2, as described in Chapters 15 (The carbonation of cold limestone) and 17 (Even the fumes may pose an environmental resource). With this type of management, at least for the river ends, you will be interested in this phenomenon, agree recover the precipitated calcium, and dried, can produce calcium oxide with lower costs and CO2 emissions than by heating the rocks. As we said, the vast majority of the impurities in the source rocks has been retained in the hanging baskets with double bottom ball. Of course, the waters that come out of the DCPTCG will be deducted from the docks (braa) plants, which do not have water with pH values □□altered.

29) D.C.P.T.C.G. PATENTS & DESIGNS

To make it easier to understand the foregoing, Attached are the following drawings:

– Block diagram of the carbon cycle extracted from the on-line publication: http://www.google.it/imgres?imgurl=http://www.co2club.it/UserFiles/image/itco2/ciclo% 2520carbonio.

– Block diagram of the carbon cycle anthropic developed by myself, including the global water treatment and energy in protecting the environment.

– N. 4 summarized deposits of national patent (still new, but at the time, humiliated).

– Flow diagram of thermal power plant depurcogeproduction covered global DCPTCG

– Longitudinal section D.C.P.T.C.G. on the sector D.D.C.L.

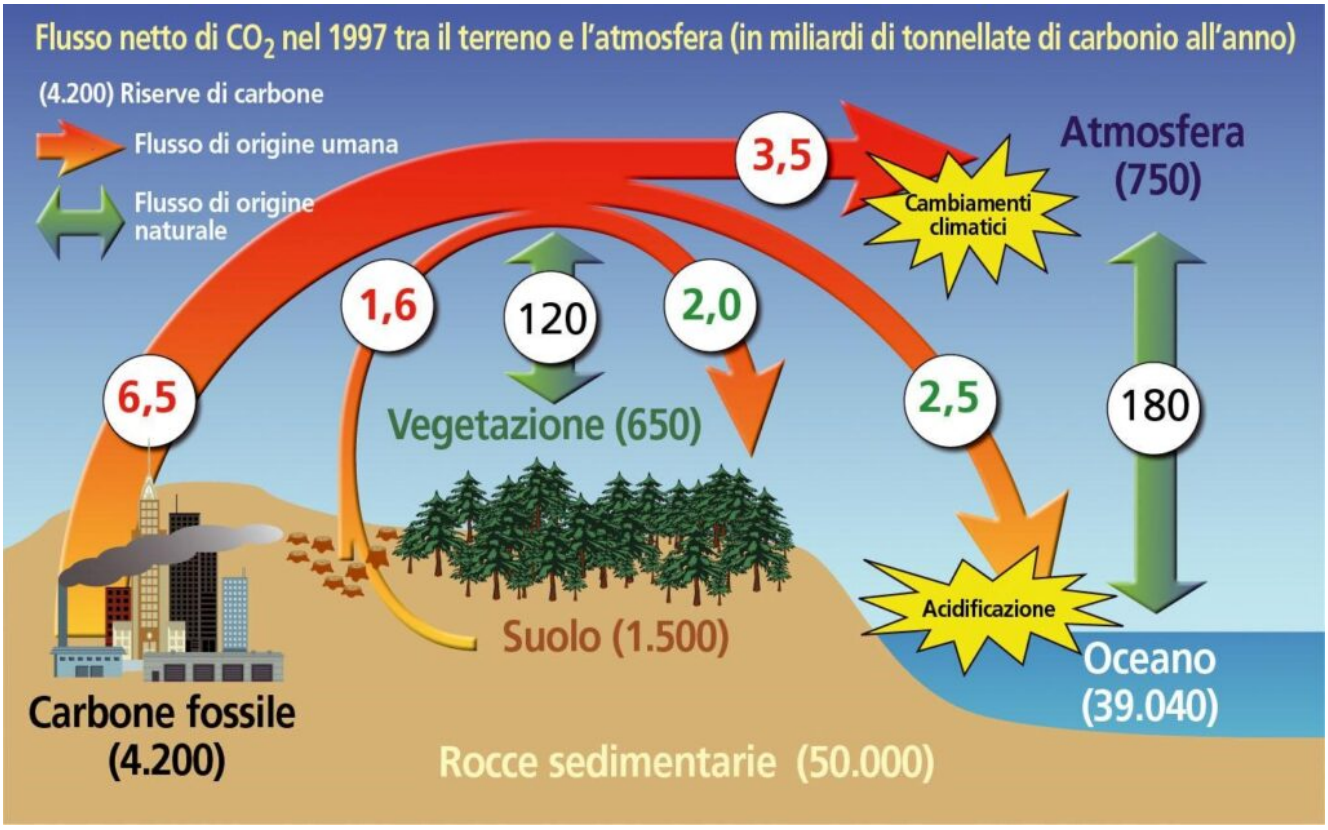
– Cross-section system D.C.P.T.C.G. on sectors F.S.V. and D.D.C.L.

Below is a legend alphabetic with the meaning of the symbols shown on the drawings.

Legend: (aa) alimentaione alkaline water; (AALR) water washing resins; (acf) arrival sewer; (ad) alimentaione water decarbonata (agf) agitator sludge; (bam) bilancella equipped

motorized; (braa) water collection basin to alkalize , (brad) basin collecting water to be purified; (cbio) biogas collector; (ics) bagged compost; (CIM) body of water upstream; (Civil) water body downstream; (CTEbio) thermal power plant fueled with biogas (CRD bio) chimney flue gas treatment and recovery biofuels; (CRDfos) chimney recovery and flue gas cleaning fossil fuels; (CPCC) calcareous wheeled hanging baskets; (CpRC) door hanging baskets trolley resins; (crp) channel stones collection; (dg) digester (eva) electric fan for air; (evf) electric fan for fume (FFCT) thermal power plant flue gas filtration; (fcb) cyclone filter for biogas (Ftac) tube hot water; (gp) bridge cranes; (ITfos) thermal plant fossil; (MSCB) elevator sorting racks and racks; (ntm) tape transport sludge; (plv) rain; (ps) solar panels; (psa) pump lifting water; (PSAC) lifting pump hot water; (psf) lift pump sludge; (pst) transparent solar panels; (sca) lime silo; (scmcv) biological pond and limestone covered mechanized vertical (sbm) silo biomass; (sbfscv) biological pond covered following optional vertical (sbffcv) optional final biological pond covered vertical (scmcv) emissions covered limestone mechanized vertical (SCAA) water heat exchanger water; (SCAAR) air-water heat exchanger; (SCFA) flue gas heat exchanger water; (scFv) flue gas heat exchanger steam (SCVA) heat exchanger water vapor; (DFT) tank for sludge thickening transit; (smpcv) greenhouse mechanized production covered vertical (SREA) air inlet damper; (sif) smoke damper interception; (src) condensate collection tank; (ssa) anionic detergent solution; (ssc) cationic detergent solution; (tlr) tunnel washing resins; (tor) torch; (tpbio) pneumatic conveying biomass; (tlfr) tunnel final wash resins; (between) tunnel Regeneration anionic, (trc) cationic tunnel regeneration; (TRFA) hopper for thickened sludge; (tRCD) hopper digesters; (TRMC) hopper limestone boulders; (trr) tunnel resin regeneration; (ua) air outlet; (uta) air handling units; (vas) trays for water overflow; (vsa) stairwell and elevator; (vsd) purified water drain valve; (vrc) shut-off valve recirculating water; (zcsbc) covered area sorting racks

and baskets .


Flusso netto di CO_2 nel 1997 tra il terreno e l'atmosfera (in miliardi di tonnellate di carbonio all'anno)
(4.200) Riserve di carbone
Flusso di origine umana
Flusso di origine naturale
3,5
Atmosfera (750)
Cambiamenti climatici
1,6
120
2,0
6,5
2,5
180
Vegetazione (650)
Suolo (1.500)
Acidificazione
Oceano (39.040)
Carbone fossile (4.200)
Rocce sedimentarie (50.000)

PROSPETTO MODULO A

DOMANDA DI BREVETTO PER INVENZIONE INDUSTRIALE

NUMERO DI DOMANDA: CE2012A000008 **DATA DI DEPOSITO:** 19/11/12

A. RICHIEDENTE/I COGNOME E NOME O DENOMINAZIONE, RESIDENZA O STATO ,

PEZONE LUIGI ANTONIO RESIDENTE IN VIA CASERTA, PARCO VEREDE, N 5 - SANTA MARIA CAPUA VETERE - CASERTA - ITALIA

C. TITOLO

CIMINIERE DI CATTURA, RAFFREDDAMENTO E DEPURAZIONE FUMI

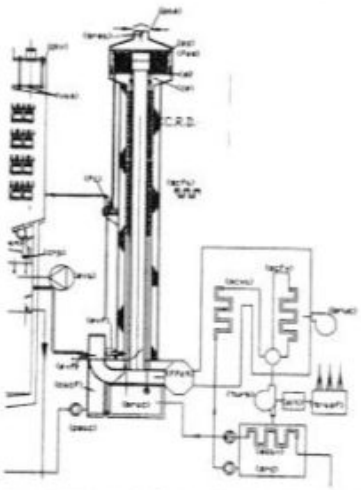
E. CLASSE PROPOSTA

SEZIONE	CLASSE	SOTTOCLASSE	GRUPPO	SOTTOGRUPPO

O. RIASSUNTO

Allo stato dell'arte le ciminiere sono una semplice via di fuga dei fumi verso l'atmosfera, essendo la depurazione dei fumi delegata ai sistemi di filtraggio incorporati negli impianti termici, in genere, costituiti da filtri a ciclone ed elettrostatici, mentre il raffreddamento dei fumi e affidato, in parte a scambiatori di calore che preriscaldano l'aria comburente che alimenta i bruciatori o focolai e in parte all'altezza della ciminiera. Il CO2, non può essere eliminato dai sistemi di filtraggio, pertanto, le ciminiere, sono progettate e dimensionate soltanto in base a dei principi fisici che regolano la fuoriuscita dell'aria attraverso una sezione di passaggio, più o meno lunga, in funzione della differenza di temperatura tra l'interno e l'esterno e della portata di fumi da evacuare. Il sottoscritto, invece, affida alle ciminiere il compito di recupero del CO2 e del calore da sfruttare ai fini ambientali ed energetici trasformando gli impianti termici attuali in impianti di "depurcogeproduzione termoelettrica globale. Le ciminiere (CRD), pur continuando ad essere dimensionate con i criteri attuali per l'evacuazione dei fumi dai focolai termici, naturale o forzata, saranno modificate a partire dall'estremità superiore della canna fumaria per riportare verso il basso i fumi e in questo percorso di discesa consentiranno una ulteriore filtrazione e un ulteriore raffreddamento per la cessione di una parte del calore all'acqua che sarà impiegata nel processo successivo insieme ai fumi stessi e al CO2. Le nuove ciminiere assomiglieranno a una torre piezometrica non emetteranno CO2 e gas tossici nell'atmosfera, ma richiameranno al loro interno aria atmosferica che contribuirà al raffreddamento.

P. DISEGNO PRINCIPALE



FIRMA DEL / DEI RICHIEDENTE / I

Pezone Luigi Antonio

PROSPETTO MODULO A

DOMANDA DI BREVETTO PER INVENZIONE INDUSTRIALE

NUMERO DI DOMANDA: BE2012A000007 **DATA DI DEPOSITO:** 19/11/12

A. RICHIEDENTE/I COGNOME E NOME O DENOMINAZIONE, RESIDENZA O STATO :

PEZONE LUIGI ANTONIO RESIDENTE IN VIA CASERTA, PARCO VEREDE, N.5. - SANTA MARIA CAPUA VETERE - CASERTA - ITALIA

C. TITOLO

IMPIANTO SINERGICO DI DIGESTIONE, DISIDRATAZIONE E COMPOSTAGGIO LINEARE (D.D.C.L)

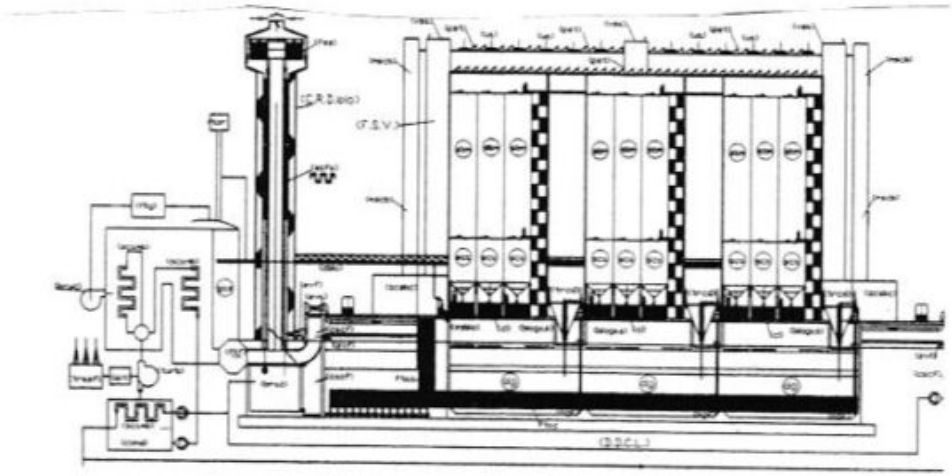
E. CLASSE PROPOSTA

SEZIONE	CLASSE	SOTTOCLASSE	GRUPPO	SOTTOGRUPPO

O. RIASSUNTO

Allo stato dell'arte gli impianti termici e le centrali termoelettriche, sono una grande fonte di inquinamento dell'atmosfera per le sostanze tossiche emesse e anche fonte di sprechi economici per il calore disperso e non recuperato. L'invenzione del sottoscritto denominata "depurcogeproduzione termoelettrica globale" (D.C.P.T.C.G.) recupera queste risorse, aumenta i rendimenti, rende pulita l'energia. Tra i componenti principali di questi impianti ci sono i "digestori, disidratatori, compostatori lineari (D.D.C.L.)". Quest'impianti sinergici che compattano tre processi in uno solo, insieme al biogas, produrranno compost in un lungo processo aerobico che impiega gli stessi tempi della digestione mesofila. I fanghi, senza uscire dall'impianto, saranno trasformati in compost di qualità essiccato, stabilizzato con ossido di calcio e insaccato in grandissime quantità. I D.D.C.L., dimensionati in base al calore recuperabile dalle acque di scarico e dai fumi, sono il prolungamento naturale della linea acque degli impianti termici esistenti, così come le ciminiere di recupero e depurazione dei fumi (C.R.D.) sono il prolungamento della linea "aria". Nella D.C.P.T.C.G. completano queste due linee i fabbricati serra verticali (F.S.V.). Oggi, gli impianti termici non sono completi, non chiudendo il ciclo del carbonio antropico né per via acquatica, né per via aerea. Anche gli attuali impianti di depurazione non chiudono il ciclo del carbonio. Poiché le potenzialità degli impianti termoelettrici sono immense rispetto a quelle delle depurazioni, le depurcogeproduzioni termoelettriche sostituiranno anche gli attuali depuratori ma senza il recupero energetico consentito dai (D.D.C.L.) nulla è possibile.

P. DISEGNO PRINCIPALE



FIRMA DEL / DEI RICHIEDENTE / I

Pezone Luigi Antonio

PROSPETTO MODULO A

DOMANDA DI BREVETTO PER INVENZIONE INDUSTRIALE

NUMERO DI DOMANDA: CE2012A000010 **DATA DI DEPOSITO:** 19/11/12

A. RICHIEDENTE/I COGNOME E NOME O DENOMINAZIONE, RESIDENZA O STATO ;

PEZONE LUIGI ANTONIO RESIDENTE IN VIA CASERTA, PARCO VERDE, N.5 - SANTA MARIA CAPUA VETERE - CASERTA - ITALIA

C. TITOLO

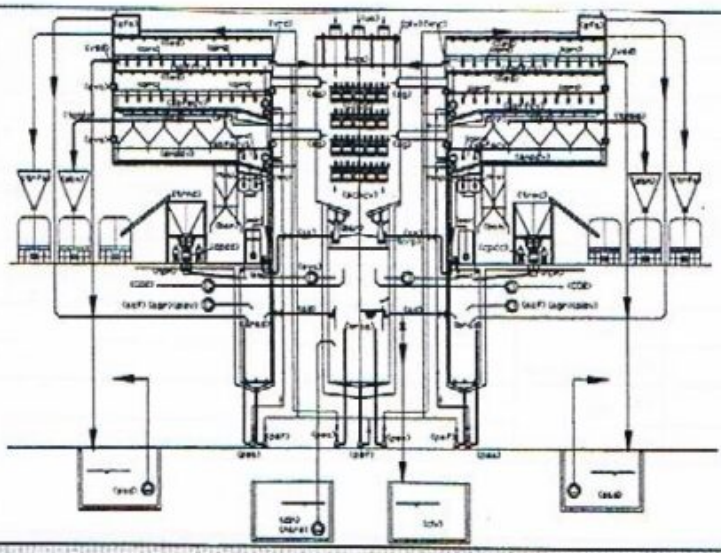
FABBRICATI SINERGICI VERTICALI (F.S.V.) DEPURATORI, ALCALINIZZATORI DESALINIZZATORI, PRODUTTORI DI BIOMASSE CON CONSUMO DI CO2

E. CLASSE PROPOSTA	SEZIONE	CLASSE	SOTTOCLASSE	GRUPPO	SOTTOGRUPPO

O. RIASSUNTO

L'invenzione del sottoscritto denominata "depurcogeproduzione termoelettrica globale" (D.C.P.T.C.G.), depositata in pari data alla presente, basata sulle sinergie tra impianti diversi, recupera con il CO2 anche le risorse termiche attualmente sprecate, aumenta i rendimenti, rende pulita l'energia. Tra i componenti principali di questi impianti ci sono i fabbricati sinergici verticali F.S.V. che depurano l'aria e l'acqua producendo biomasse acquatiche e terrestri. Consumando il CO2 consentono la chiusura del ciclo del carbonio antropico che lasciano aperto gli impianti termici e anche gli altri impianti di depurazione. I F.S.V. si basano sull'affiancamento di serre foto sintetiche e calcaree che si scambiano l'acqua e l'aria depurandole dalle sostanze indesiderate. Nelle serre calcaree il CO2 è consumato nella carbonatazione a freddo di rocce calcaree immagazzinate su più piani in appositi cestelli pensili carrellati, investiti da acque depurate, decarbonate; Nelle serre foto sintetiche, gli stagni biologici producono biomasse in superficie mentre al di sotto circolano cestelli con resine di scambio ionico che automaticamente vanno alla rigenerazione, ma nello stesso ambiente si producono anche biomasse terrestri, soprattutto di natura energetica, che, data la semplicità delle lavorazioni, utilizzano sistemi meccanici che consentono la coltivazione completamente in automatico fino ad avere il raccolto insilato o in tramogge. Le acque che scarichiamo, sono alcalinizzate se vanno verso il mare, desalinizzate se vengono dal mare.

P. DISEGNO PRINCIPALE



FIRMA DEL / DEI RICHIEDENTE / I

Pezone Luigi Antonio

PROSPETTO MODULO A

DOMANDA DI BREVETTO PER INVENZIONE INDUSTRIALE

NUMERO DI DOMANDA: CE2012A000009 **DATA DI DEPOSITO:** 19/11/12

A. RICHIEDENTE/I COGNOME E NOME O DENOMINAZIONE, RESIDENZA O STATO ;

PEZONE LUIGI ANTONIO RESIDENTE IN VIA CASERTA, PARCO VERDE, N 5 - SANTA MARIA CAPUA VETERE - CASERTA - ITALIA

C. TITOLO

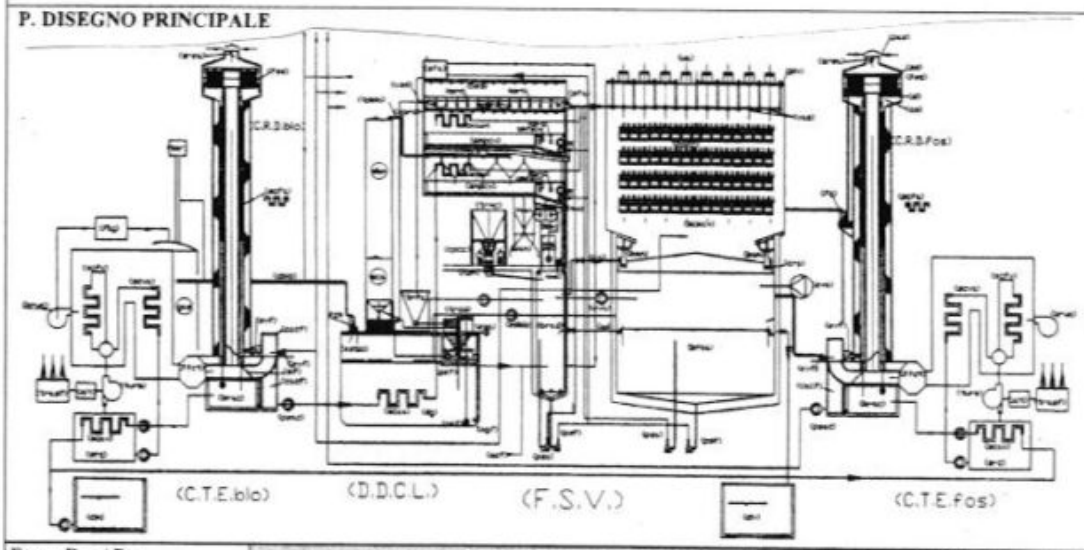
IMPIANTO SINERGICO DI DEPURCOGEPRODUZIONE TERMOELETTRICA COPERTA GLOBALE (D.C.P.T.C.G.)

	SEZIONE	CLASSE	SOTTOCLASSE	GRUPPO	SOTTOGRUPPO
E. CLASSE PROPOSTA					

O. RIASSUNTO

Allo stato dell'arte gli impianti termici e le centrali termoelettriche, sono una grande fonte di inquinamento dell'atmosfera per le sostanze tossiche emesse e anche fonte di sprechi economici per il calore disperso e non recuperato. L'invenzione del sottoscritto denominata "depurcogeproduzione termoelettrica globale" (D.C.P.T.C.G.) recupera queste risorse, aumenta i rendimenti, rende pulita l'energia, depura e alcalinizza o desalinizza tutte le acque che attraversano l'impianto. Il sistema si basa sull'allargamento di questi impianti con nuove sezioni in modo da poter sfruttare il calore e il CO2 che producono. Fanno parte di queste nuove sezioni le ciminiere C.R.D. che riportano verso il basso i fumi contribuendo alla filtrazione e al raffreddamento, i fabbricati D.D.C.L che sfruttano il calore contenuto nelle acque per riscaldare grandi digestori anaerobici producendo biogas e compost per l'agricoltura di alta qualità; i fabbricati serra verticali F.S.V. che consumando il CO2 e il calore residuo producono biomasse energetiche e fanghi, che saranno trasferiti agli stessi D.D.C.L. Nei F.S.V. il CO2 sarà usato anche per la carbonatazione a freddo di rocce calcaree immagazzinate su più piani in appositi cestelli pensili carrellati. E' il continuo riciclo delle acque tra la sezione calcarea (sbcmcv) e quella depurativa (sbsfcv) a consentire il maggior assorbimento del CO2. Piogge di acqua depurate ed eventualmente desalinizzate da cestelli mobili riempiti con resine di scambio ionico, trascineranno nei bacini acquatici sottostanti i carbonati prodotti dalla corrosione delle rocce che saranno rinnovate periodicamente.

P. DISEGNO PRINCIPALE



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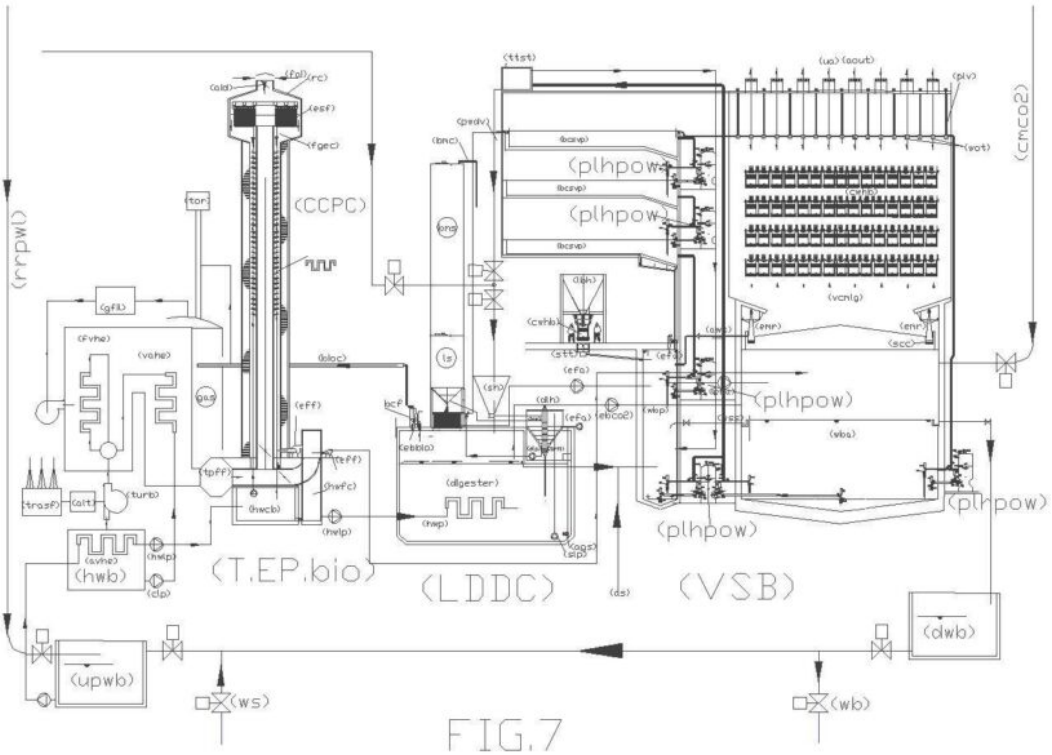
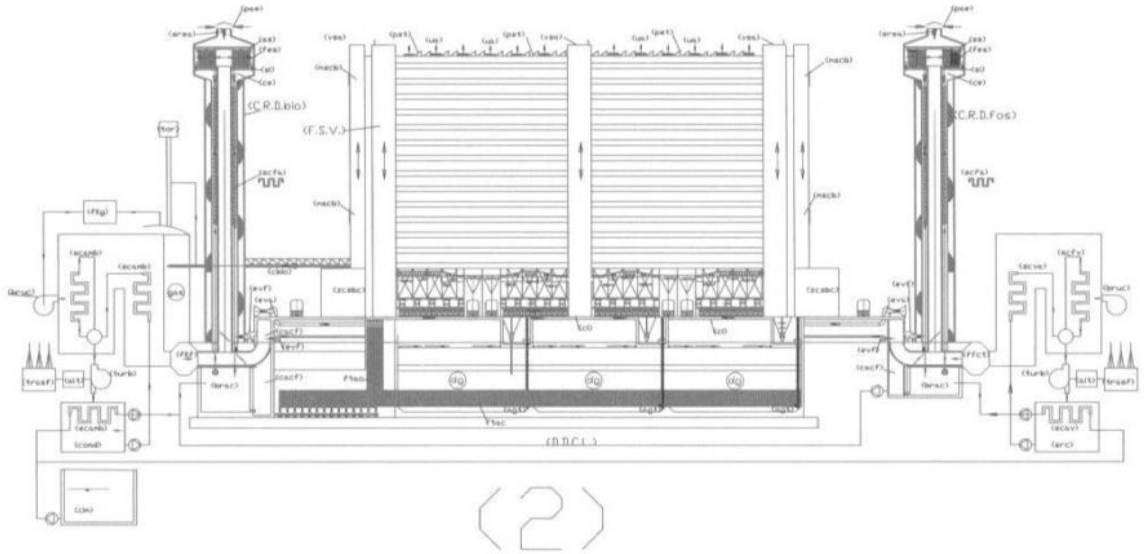

(rrpwl)
(CCPC)
(plhpow)
(plhpow)
(plhpow)
(plhpow)
(cmco2)
(T.EP.bio)
(LDDC)
(VSB)
(upwb)
(ws)
(wb)
(dwb)
(hwlb)

FIG.7



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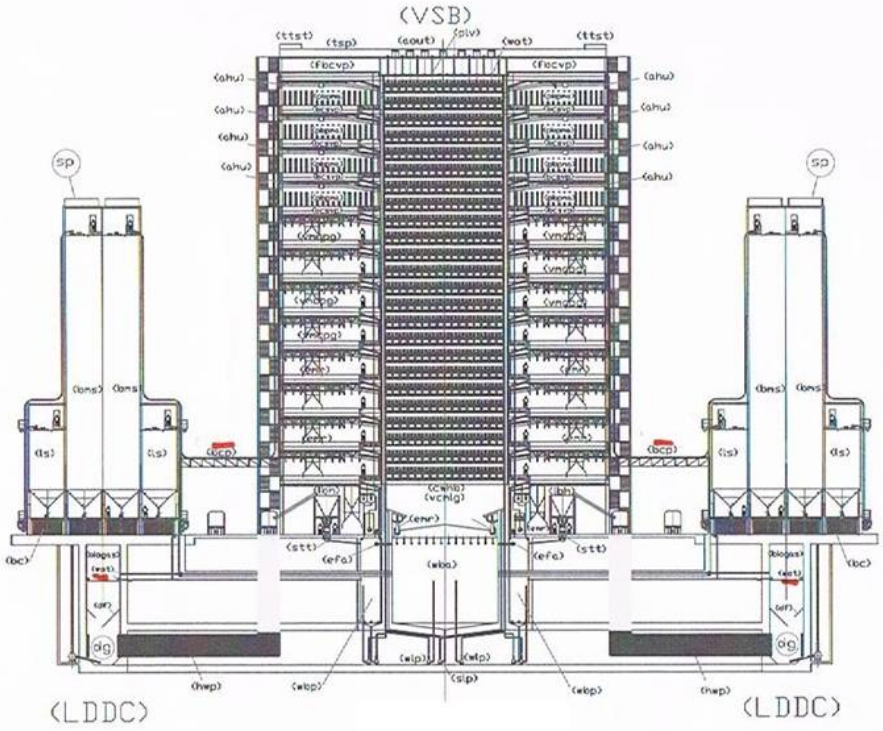
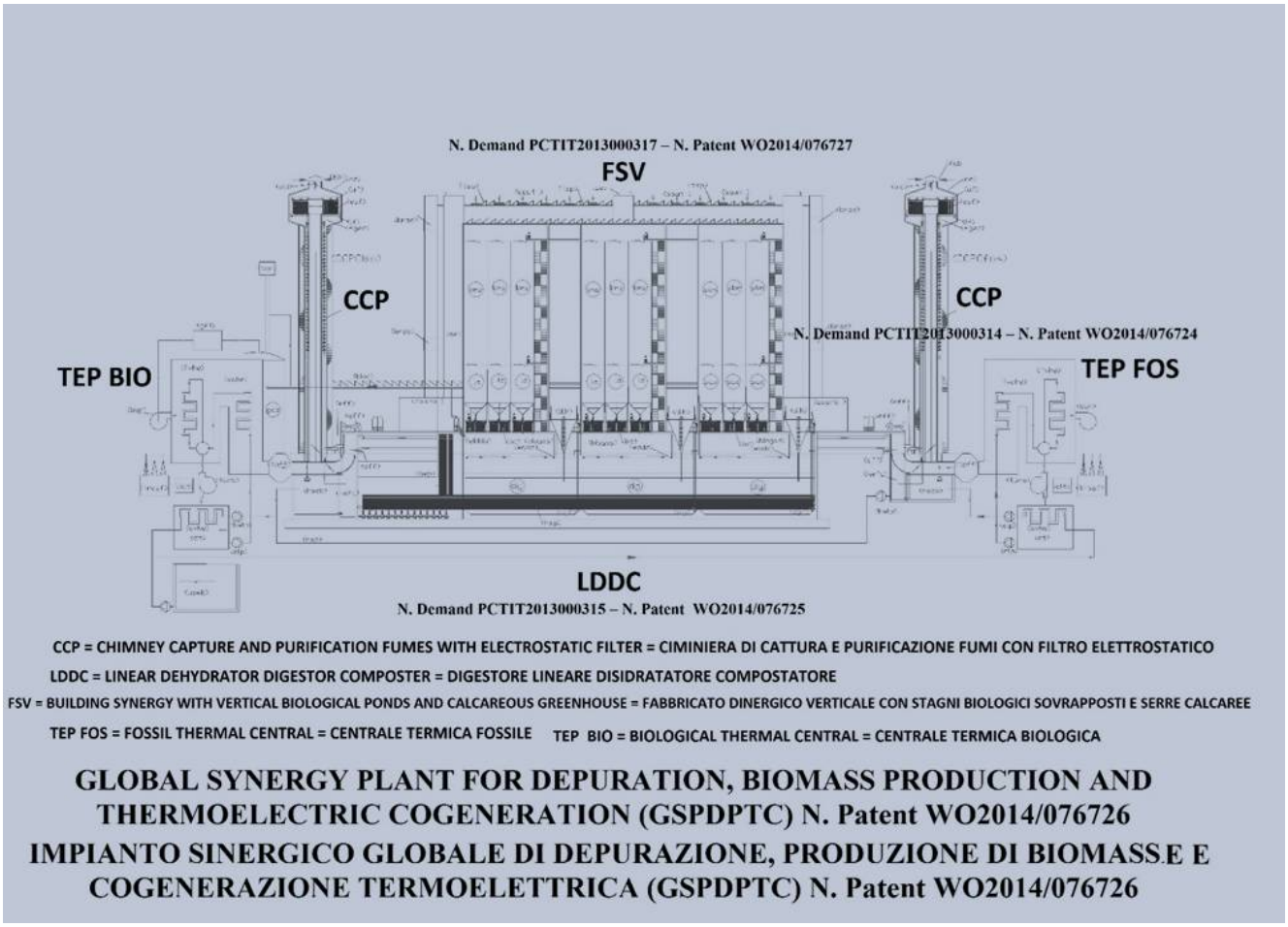


VSB = VERTICAL SYNERGIC BUILDINGS

LDDC = DIGESTORS DISIDRATOR LINEAR COMPOSTATORS



Luigi Antonio Pezone