

**HEALTH, SOCIAL, EDUCATIONAL & ENVIRONMENTAL COMMITTEE MEETING
HELD IN THE
PUTNAM COUNTY OFFICE BUILDING
ROOM #318
CARMEL, NEW YORK 10512**

Chairwoman Scuccimarra, Legislators Gouldman & Sayegh

Wednesday

6:00PM

September 12, 2018

The meeting was called to order at 6:00 P.M. by Chairwoman Scuccimarra who requested that Legislator Gouldman lead in the Pledge of Allegiance. Upon roll call Legislators Gouldman, Sayegh, and Chairwoman Scuccimarra were present.

Item #3 - Approval of Minutes – August 14, 2018

The minutes were approved as submitted.

Legislator Sayegh made a motion to waive the rules and accept the additional; Seconded by Legislator Gouldman. All in favor.

Item #4 - Presentation/Harmful Algal Blooms/Marshall Mermell, CEC of Advanced Resilient Technology

Marshall Mermell, Chief Executive Consultant of Advanced Resilient Technology (ART) played a short video about harmful algal blooms. He then gave the attached PowerPoint presentation. He stated they recover and reuse organic waste like woodchips or manure, and convert it into material known as biochar. He stated it is then used to clean up harmful algal blooms. He stated the lack of oxygen kills water. He stated eutrophication is the main problem that is occurring and that is when the water responds to excess nutrients such as nitrates and phosphates. He stated this is what causes the algal blooms. He stated Advanced Resilient Technology has found a way to convert the waste into revenue for a private-public partnership. He stated they have experience doing this in Europe and overseas. He stated they extract the phosphorous from the water and sell it. He stated the process meets all regulations. He stated fertilizer is the main reason for phosphorous runoff into the water supplies. He stated there is only a 60 year supply of mined phosphorous left. He stated this is an opportunity to repurpose phosphorous and reenter it into the agricultural system. He explained that biochar has many uses and is created by taking organic waste and heating it through pyrolysis. He stated this has a social impact by creating high-quality jobs, better health quality, and cleaning up the environment. He stated there is also the aspect of the financial return. He stated biochar has been used in Europe to improve concrete by making it 30% lighter and 100% stronger than reinforced concrete. He stated biochar adsorbs phosphorous and nitrates for harvesting and reuse. He stated this is done before using their nano-bubble generators (generators) to clean up the harmful algal blooms. He explained how the generators work, as shown in slide 10. He stated this process activates biologic recovery. He noted that he has heard that a lot of the water bodies in Putnam County have odor issues, and that the generators will help alleviate that issue. He explained the

difference between these generators and regular aeration, which is generally only 10% effective. He referenced the difference in slide 12. He showed before and after treatment pictures in slide 14.

Joseph Spina, Field Engineering and Automation Consultant of ART, noted that there are no chemicals used in the nano-bubbles.

Chairwoman Scuccimarra questioned what the usual process is.

Mr. Mermell stated first there is a solution assessment because not all bodies of water have the same cause of algal blooms. He stated then ART will put together a plan to address the issue, including what kind of biochar that is needed. He stated for example if a body of water has a high level of toxic metals, a certain biochar filter is used to extract the metals. He stated after that extraction, a biochar filter is put in to extract phosphorous and nitrates. He stated this biochar is then repurposed into a soil amendment, and then sold.

Chairwoman Scuccimarra questioned how exactly the biochar filters the water.

Mr. Mermell stated it is similar to how a refrigerator filters water for drinking.

Chairwoman Scuccimarra questioned how many generators are needed per square mile.

Mr. Mermell stated he did not have the exact numbers but stated for example Lake Carmel would need two (2) or three (3) generators.

Legislator Sayegh questioned if the generators are permanent or if they can be moved around.

Mr. Mermell stated they can be moved around.

Legislator Sayegh stated the algal blooms seem to happen during the summer. She questioned if the generators would stay in the water all summer.

Mr. Mermell stated the generator should be put in place during the spring to address the issue. He stated once the water is clean, it can be kept if there is an ongoing problem. He stated it depends on the cause of the algal bloom.

Legislator Sayegh questions if this process harms aquatic life.

Mr. Mermell stated it promotes aquatic life.

Marc Sabin, Chief Marketing Consultant of ART, stated the oxygen allows the natural processes to continue.

Legislator Sayegh stated this is not a one-time fix, it will have to be done again.

Mr. Mermell stated some places it is a one-time fix. He stated for example there are places in Asia which were treated once and are still clean after 10 years. He stated it depends on the environment surrounding the water body.

Legislator Addonizio stated the harmful algal blooms could come back if there are seeping septic systems. She questioned what the process would be for returning the generators to these bodies of water.

Mr. Mermell stated it depends on the situation. He stated they could simply put in more biochar.

Legislator Addonizio questioned if this process has been used in the United States.

Mr. Mermell stated not yet. He stated this is the first place ART is introducing this process, because they are from Putnam County.

Legislator Castellano questioned what the cost is.

Mr. Mermell stated there would be an initial investment, and then once the biochar is produced, the process pays for itself.

Legislator Gouldman questioned where the biochar will be sold and if it will be in Putnam County.

Mr. Mermell stated it depends on where the market is.

Legislator Sullivan questioned what the process is on the County's part.

Mr. Mermell stated it is up to the County. He stated it should be set up so that the process pays for itself. He stated the revenue created by the biochar can lessen the burden on the taxpayers.

Resident Bill Pugh questioned if the generators are portable and can be brought to different bodies of water. He questioned if this process could create jobs in the community.

Mr. Mermell stated yes, that has been done in the other countries. He stated there can be monitoring jobs that people need to be trained for.

Michelle Smith, Executive Director of the Hudson Highlands Land Trust, questioned if the DEC (Department of Environmental Conservation) has looked into this process.

Mr. Mermell stated he was at the New York City Watershed Science and Technical Conference today and he spoke with the DEC and DEP (Department of Environmental Protection).

Legislator Addonizio questioned how potential workers will be trained and what the cost for the training would be.

Mr. Mermell stated ART would train them locally. He stated the cost would be determined in the initial investment budget.

Legislator Castellano questioned what the upfront cost for the County would be.

Mr. Mermell stated the cost for the project on slide 14 was approximately \$500,000.

Legislator Sullivan requested clarification on the process to make biochar.

Mr. Mermell stated through thermo-conversion technologies. He stated it can be created with organic waste.

Legislator Addonizio questioned where the thermo-conversion is completed.

Mr. Mermell stated there is a plant in Washington State.

Chairwoman Scuccimarra questioned how much the generators cost.

Mr. Mermell stated approximately \$100,000 per unit.

Legislator Castellano questioned how much noise the generators make.

Mr. Mermell stated not much.

Legislator Sayegh questioned if the County would need to purchase the generators.

Mr. Mermell stated it is more of an investment but ART is open to any structure that works best for the County. He stated their main purpose to create a social impact in the community.

Chairwoman Scuccimarra questioned the process for the County moving forward.

Mr. Mermell stated a plan of action would need to be set up.

Acting Commissioner of Health Michael Nesheiwat questioned if ART has had any discussions with the New York State Department of Health.

Mr. Mermell stated he met with State Department of Health representatives today and they were very interested in this process.

Acting Commissioner Nesheiwat noted that the State Department of Health has been very helpful with providing resources to help deal with this issue. He stated grant funding could help with the financial side of the process.

Lynne Eckardt, Town of Southeast Councilwoman, questioned what the cost for assessing and diagnosing the bodies of water would be.

Mr. Mermell stated it depends on the situation. He stated that cost would be part of the project's budget. He stated once the size of the lakes is given to ART, they could provide an estimated budget.

Legislator Castellano questioned where ART is located.

Mr. Mermell stated it is in the Village of Nelsonville.

Legislator Addonizio questioned how large the generators are.

Mr. Mermell stated they are about the size of a refrigerator, but there are three (3) sizes.

Mr. Spina stated they can be enclosed.

Legislator Addonizio stated her concern regarding the aesthetic of the generators near the water.

Mr. Spina stated it is a tradeoff for having a clean body of water.

Legislator Sullivan questioned what would happen if this process does not work.

Mr. Mermell stated ART mitigates risk throughout the whole process. He stated they have completion bonds and performance bonds.

Legislator Castellano questioned what the largest body of water is that ART has treated.

Mr. Sabin stated they have treated rivers and other running waters. He noted that the nano-bubbles stay in the water for a long period of time.

Legislator Castellano questioned if there have been any failed treatments.

Mr. Mermell stated there have not.

Mr. Pugh questioned if there is anything dangerous about the machine.

Mr. Mermell stated no.

Mr. Pugh questioned if local farm ecosystems could be used to create biochar.

Mr. Mermell stated yes and it could make the farms money.

Chairwoman Scuccimarra stated this is a topic that will continue to be discussed.

Item #5 - Proposed Tobacco 21 Laws

- a. Local Law To Amend The Putnam County Code Adding A New Chapter 223 Entitled "Tobacco Sales" With A New Article I, Entitled "The Tobacco 21 Act" and A New Article II, Entitled "Local Tobacco Retail Licensing &**

Enforcement Mechanism” [Tabled from September 4, 2018 Full Legislative Meeting]

Legislative Counsel Robert Firriolo stated item 5a was tabled and item 5b, which was accepted as additional, is the revised version.

Chairwoman Scuccimarra requested that Legislative Counsel Firriolo explain the changes from the tabled proposal to the revised proposal.

b. New Proposed Local Law To Amend The Putnam County Code Adding A New Chapter 223 Entitled “Tobacco Sales” With A New Article I, Entitled “The Tobacco 21 Act” and A New Article II, Entitled “Local Tobacco Retail Licensing & Enforcement Mechanism”

Legislative Counsel Firriolo stated item 5b is essentially the same as the original proposal but the licensing aspect of the law was removed, so it is just an increase in the tobacco purchase age to 21. He stated instead of allowing double penalization, it allows the county to enforce only the gap between the ages of 18 to 21. He stated there was a provision added that the County law would terminate, should the State or Federal government raise the tobacco purchase age to 21.

Legislator Castellano questioned if local businesses have to do anything in addition to what they are already tasked with.

Legislative Counsel Firriolo stated the only requirement is that they must change their signage regarding the purchase age.

Acting Commissioner Nesheiwat explained the process that the Health Department goes through to inspect retailers’ compliance. He stated there is grant funding that helps fund this process.

Legislator Sullivan questioned if this legislation would create an additional workload for the Health Department.

Acting Commissioner Nesheiwat stated it would not. He stated if this passes, the Health Department will run a campaign to let retailers know that the age has been raised. He stated in 2017 there were only six (6) sales of tobacco to minors. He went over the fines for the violations.

Legislator Sullivan questioned how the inspections are carried out.

Acting Commissioner Nesheiwat stated an inspector goes into a store, and then a minor will go in and ask to purchase a tobacco product. He stated the inspector must witness the sale completed and then will approach the retailer about the violation.

Legislator Addonizio questioned how many inspections were carried out in 2017.

Acting Commissioner Nesheiwat stated there were 133.

Legislator Addonizio requested clarification on the fines for violations.

Acting Commissioner Nesheiwat stated the first violation is \$550, the second is \$950, and the third is \$1,550. He stated New York State provides parameters for the fine amounts and the County is in the middle of the high and low parameters.

Legislator Addonizio questioned in the proposed law under Chapter 223 Section 6, it states that the fines will not exceed \$1,000.

Legislative Counsel Firriolo stated that is how the proposed law has been written to enforce between the ages of 18 and 21.

Legislator Castellano questioned if the fines for minors under 18 will change if this legislation is passed.

Legislative Counsel Firriolo stated they will not change. He stated this proposed County law will only affect between ages 18 to 21.

Legislator Castellano questioned if this legislation passes, would the fines for selling to a 17 year old and a 20 year old be the same.

Legislative Counsel Firriolo stated the proposed law is potentially less money, but the minimum is the same.

Legislator Castellano questioned how the fine amount is ultimately determined. He questioned if it is by a judge.

Legislative Counsel Firriolo stated yes by an administrative law judge.

Legislator Gouldman questioned if this legislation affects the age of a retailer selling tobacco.

Legislative Counsel Firriolo stated it does not impact the retailer.

Legislator Addonizio questioned who exactly is fined.

Acting Commissioner Nesheiwat stated the owner of the store would be fined.

Legislator Sayegh questioned where the fine money goes.

Acting Commissioner Nesheiwat stated all the fines go to Putnam County.

Legislator Sullivan questioned if this legislation also applies to vaping products.

Legislative Counsel Firriolo stated yes it applies to the same tobacco products as in the State law.

Legislator Sullivan mentioned that the FDA (Food & Drug Administration) has stated that they are going to crackdown on e-cigarettes due to the usage reaching an epidemic proportion. He stated the FDA wants companies to prove that they have ways to prevent sales to minors.

Chairwoman Scuccimarra stated the companies have to prove that the e-cigarettes are not being marketed towards young people.

Legislator Sullivan stated the FDA recognizes that this is a major problem and Putnam County is as well if it moves this legislation forward.

Deputy Commissioner of Social Services Joseph DeMarzo questioned how the vape shops will be regulated if they are not registering, since the licensing aspect of the original was taken out.

Legislator Addonizio stated this could mean the law is not enforceable.

Legislative Counsel Firriolo stated New York State does regulate the sale of e-cigarettes and e-cigarette products in any establishment that sells tobacco. He stated the Health Department can enforce the regulations under State law. He stated the County law is not limited to only establishments that sell tobacco.

Deputy Commissioner DeMarzo questioned about shops that sell e-cigarettes but not tobacco.

Legislator Sayegh stated she has researched these establishments and they sell tobacco.

Legislative Counsel Firriolo stated if they are selling tobacco then they are regulated by State law.

Chairwoman Scuccimarra stated the licensing aspect can be revisited in the future.

Legislator Castellano questioned if it is possible to have an establishment that sells e-cigarette products, but not tobacco and if so, can the Health Department do inspections there.

Legislative Counsel Firriolo stated under the proposed law they can. He stated the licensing portion that was taken out, could be rewritten to only address vape shops.

Legislator Castellano stated he would support that.

Chairwoman Scuccimarra stated that could be worked on for a future committee meeting.

Legislator Sayegh made a motion to move to the Full Legislative Meeting; Seconded by Legislator Gouldman. All in favor.

Item #6 - Approval/Fund Transfer 18T217/Health Department/Additional Funds to Cover Employee's Transition to Public Health Sanitarian – Effective August 10, 2018

Chairwoman Scuccimarra made a motion to move Fund Transfer 18T217 to the Audit & Administration Meeting; Seconded by Legislator Gouldman. All in favor.

Item #7 - FYI/Fund Transfer 18T214/Health Department/Reimburse Parents for Driving their Children to Preschool Programs

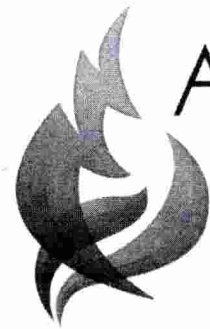
Chairwoman Scuccimarra stated this process saves the County money.

Item #8 - Other Business - None

Item #9 – Adjournment

There being no further business, at 7:30 P.M., Chairwoman Scuccimarra made a motion to adjourn; Seconded by Legislator Gouldman. All in favor.

Respectfully submitted by Administrative Assistant Ed Gordon.



Advanced Resilient
Technology

BioART Remediation Solutions

Recovery and Re-use of Organic Biomass
Using Biochar and Oxygenated bubbles



Lack of Oxygen Kills Water

Uncontrolled Runoff Leads to Dead Zones

- Across the globe clean water is a diminishing resource
- Dead Zones and algae plumes are choking off lakes, rivers, and streams
- Waste water treatment is more and more difficult and expensive

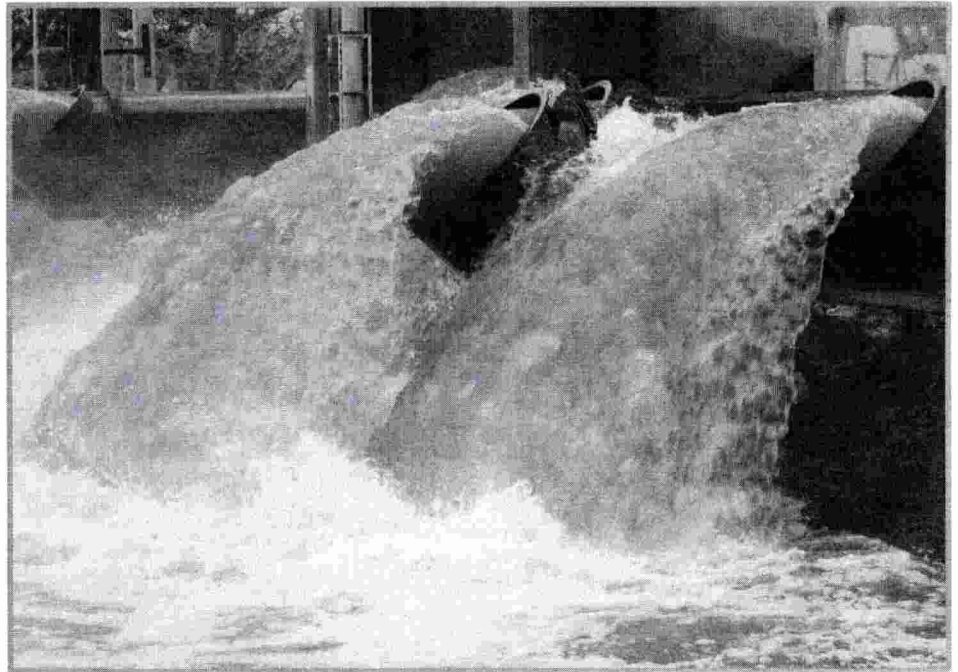




BioART's Business Platform

Extract the High and Constant Phosphorous Load

- Meets effluent phosphorus (P) limits required by legislation
- Cleans water and remediates P as a source of nutrient-rich agricultural fertilizer
- Reduces eutrophication problems
- Reduces reliance on inorganic (rock-phosphorus derived) fertilizers
- Municipal wastewater facilities lower costs by producing Biochar
- Eliminates hauling sewage sludge solids to overtaxed landfills



Treating Waste Water: Generating Revenue by Solving Problems



Biochar



Biochar Use Adds to the Triple Bottom Line

Social Impact • Environmental Benefits • Financial Return

Opportunities and Benefits

Improves Soil Conditions • Reduces Water Usage • Improves Animal Health
Reduces Livestock and Fish Mortality • Cleans Surface Water
Partnering with Local Populations for Jobs and Resources

Waste and Pollution Mitigation

Elimination of Hazardous Waste • Reduces Waste Hauling • Toxin Extraction
Cleans Polluted Waters • Wastewater Treatment • Landfill Reduction
Forest Management • Brownfield Clean-up • Carbon Sequestration

Industrial and Construction

Building and Construction • Electronic Manufacturing • Military & Safety Equipment
Activated Charcoal • Green Energy • Chemical Processes • Carbon Credits
Graphene Production • Medicines and Nutraceuticals



High Value of Biochar

- Adsorbs and harvests phosphorous and nitrates for reuse
- Extracts toxins and heavy metals from water and soil
- Filters water and waste water effluent



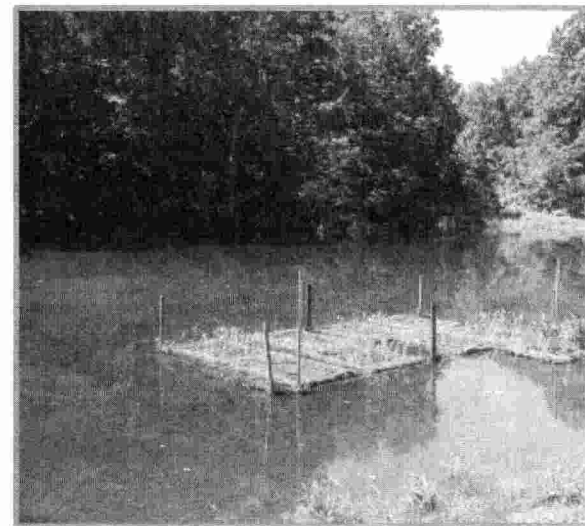
Biochar delivers multiple environmental benefits



The Power of Biochar

Multiple Uses with Multiple Benefits

- Once Used, Biochar can be repurposed into Formulated Char™
- Sequesters carbon
- Meets or exceeds regulatory obligations

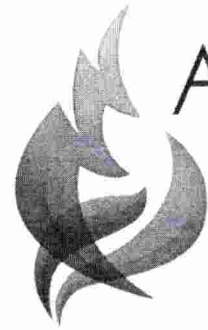


Repurposing Waste into Environmental Solutions

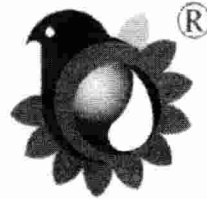


Bringing Life Back to Water

BIONANO INTERNATIONAL LTD.



Advanced Resilient
Technology



Nano Bubbles

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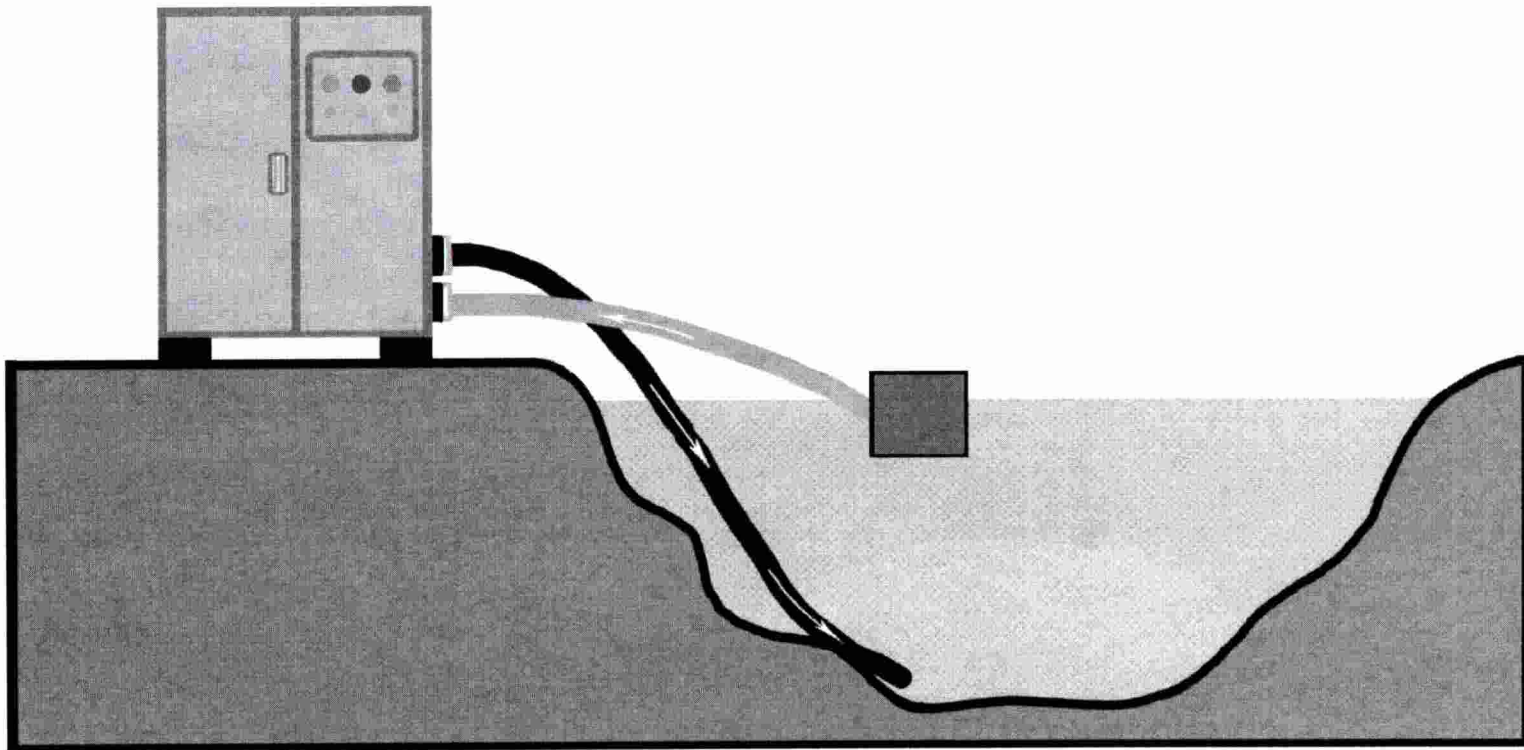
Bringing Life Back to Water



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NBG Oxygenating Water



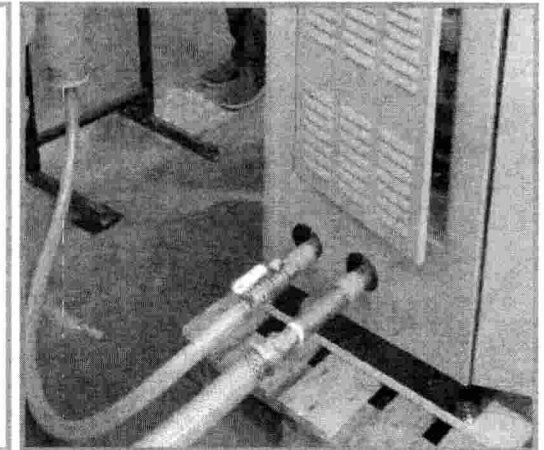
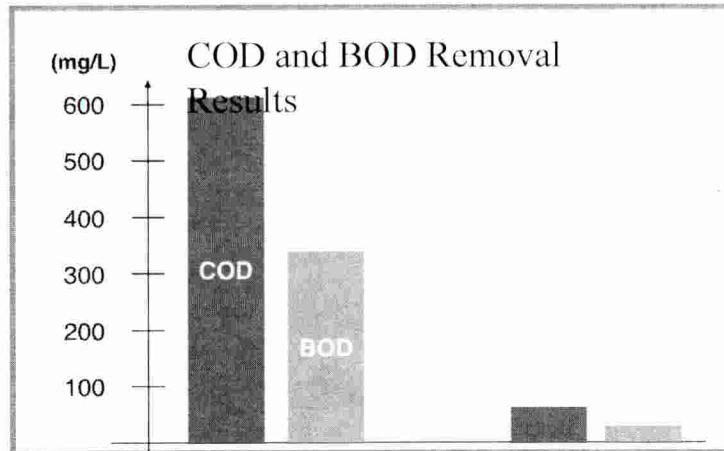
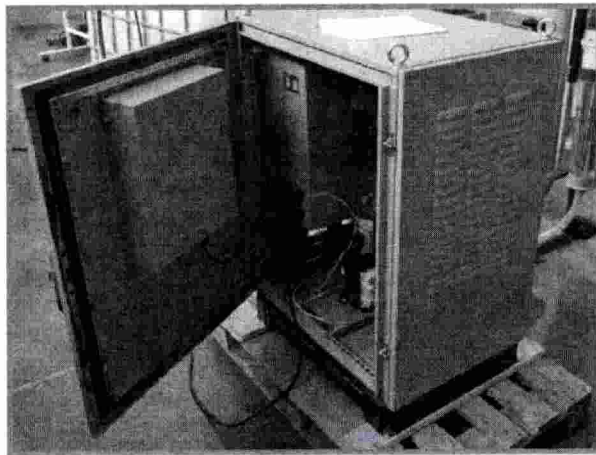
Water is drawn from near the surface
Ultrafine bubbles are mixed into the water
Oxygenated water is released near the bottom of the source



Patented Ultra Fine Nano Bubble Generator

Activates Biologic Recovery and Strengthens the Ecological Chain

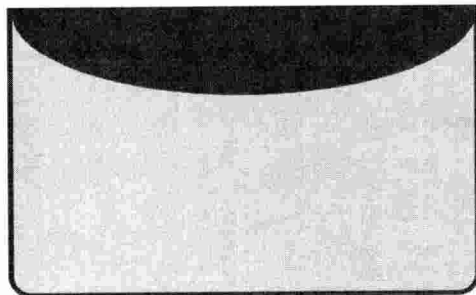
- Eliminates algae, pollutants, odors and sludge
- High surface area Oxygen Transfer Efficiency (OTE) > 90%
- Feeds microorganisms, aquatic plants, zooplankton, fish, etc.
- Operates with low electrical consumption
- ISO/TC-281 – Fine Bubble Technology





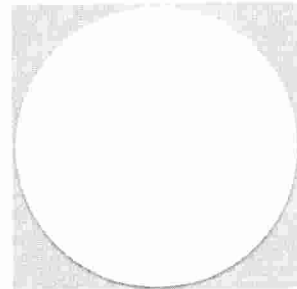
NBG vs. Other Aerations Technology

Oxygen Diffuses Throughout the Body of Water



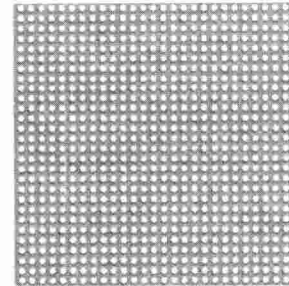
Aeration

Nano Bubbles' effectiveness comes from slow buoyancy and long-lasting ionization



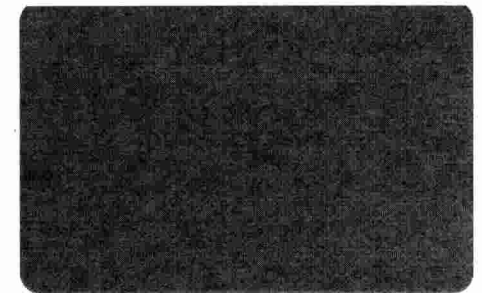
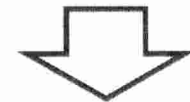
Micro Bubbles

1 μm = 1000 nm



Nano Bubbles

Nano Bubbles are 1/1,000th the size of
Micro Bubbles



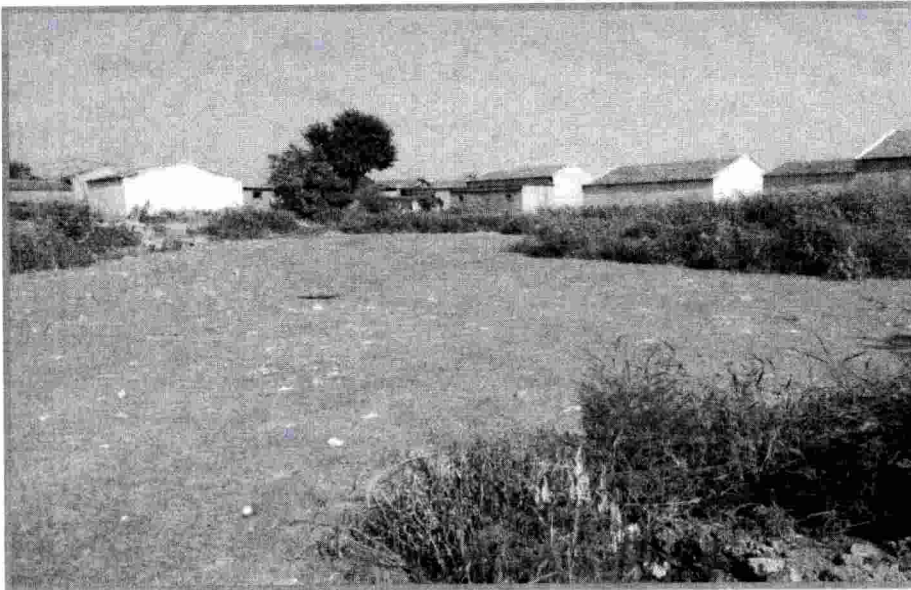
NBG



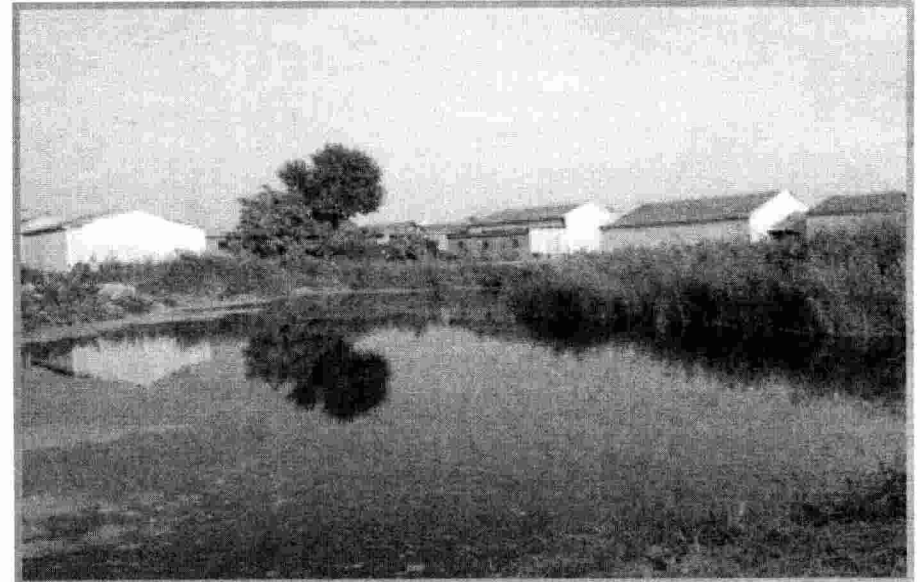
Results

Cleaning a Contaminated Lake

Oxygen Supports Microbial Degradation of Organic Pollutants



Before Treatment



Two Weeks After Treatment

BioART

Bringing Life Back to Water



Advanced Resilient
Technology

Integrating



BIONANO INTERNATIONAL LTD.

An Isle of Man Company

New York Offices

292 Main Street, Cold Spring, NY 10516

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