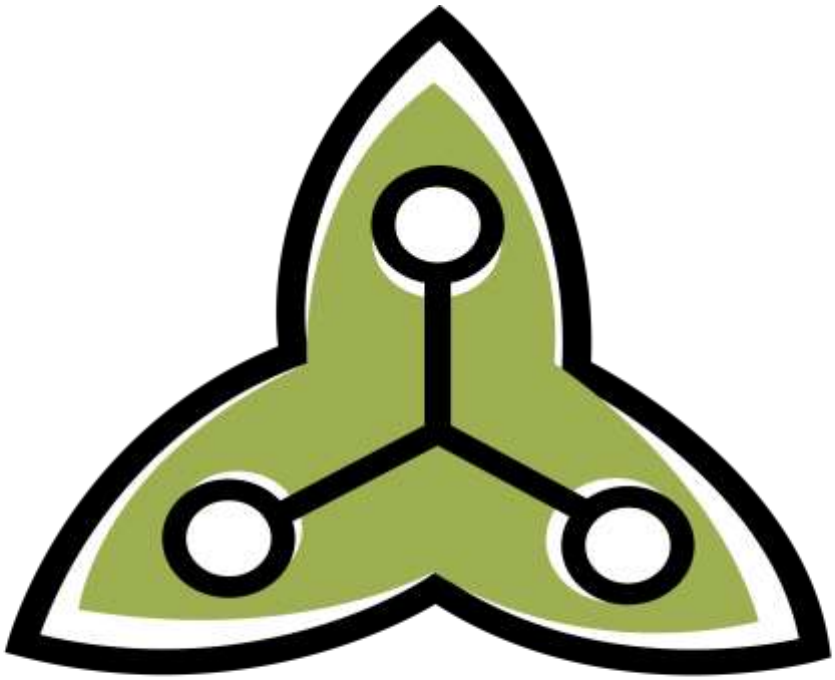

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Mum Tel: +91 9892508292 | Hyd Tel: +91 9885544155

We are a competent service provider for the following services..

1. Polluted Lake water Cleaning:- we will provide advanced Probiotic treatment to remove pollutants from highly contaminated Lakes of Bangalore.

2. Polluted Sewage Drains like Vrushabhavathi, KC Valley, Hebbal Valley, etc can be cleaned and sewage treated at very economical cost and very less time

3. Leachate from Landfills:- We can treat the highly polluted leachate from Landfills

4. Bio-Organic Fertiliser from Organic waste:- We will treat the segregated organic waste using Photo culture to remove Toxicity from the waste and introduce our microbial culture to make it as high grade Bio-Organic Fertiliser.

5. Bio Fertiliser to Parks and Road side plants and trees, Beautification of Road median:- Using our Liquid Bio Fertiliser will enhance the beauty of parks by bright, long lasting colorful flowers and help the growth and sustenance of the Road side plants and trees as part of the Greening of the Garden City.

Enclosed is our details on each of our services for your kind perusal and suitable action to utilize our modern technology and services for the improvement, environmental development and beautification of the city of Bengaluru..

We look forward to work with you and assist in improving the water quality of water bodies, Land fill Leachate, Storm water drains and lakes, Forestation, tree plantation, etc under all Govt Organisations.

Leachate Treatment at Mittaganahalli Land Fill Site – Under BBMP, Bangalore

Further to our trial to confirm the efficacy of our service and product, we had agreed to conduct a **Free trial** to confirm the effective reduction of pollution / Toxicity in water body including Leachate at Land fills.

The trials were conducted under the guidance and supervision of BBMP Engineers / Officers, we applied our Enzymes on 29th August 2020 to the Leachate filled tanks at Mittaganahalli Land fill site.

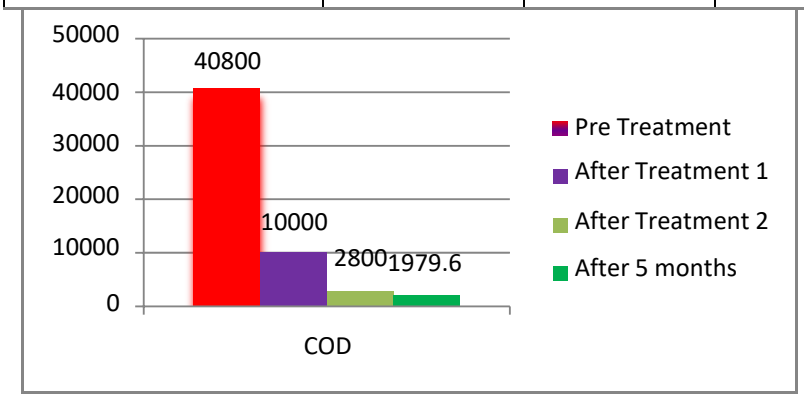
Two tanks were filled with the leachate from the lakes/ponds at site and initial sample were collected for obtaining the lab reports for its content.

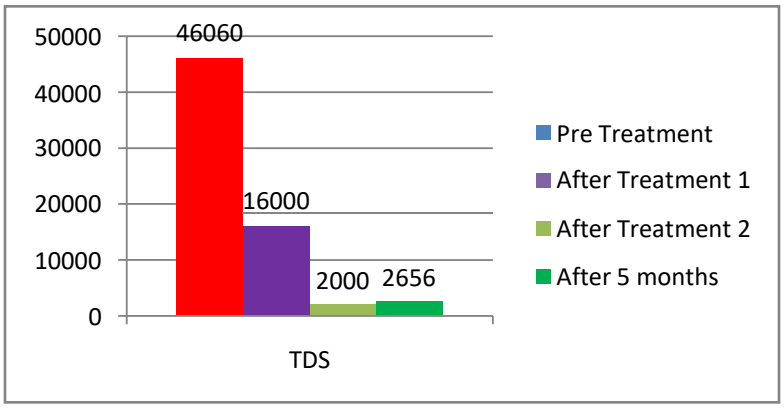
The figure beside shows the Leachate having formed thick slurry type layer on top and is **blackish with high pollution which was eminating toxic gases, foul odor**.

With such high pollution, the enzymes require more quantity and time to clean the pollutants. Hence after 7 days interval, the same tanks were tested for the CoD which had come down from 40800 to 27800 and 12800 respectively. We have installed a pump to stir the leachate such that the enzymes can mix and react faster. After further 7 days, the CoD level in another trial tank have reduced from 2800 to 1360 and 536 respectively which is phenomenal reduction compared to the pre-trial contamination.

A case study of **Leachate treatment** was undertaken at Mittaganahalli SWM yard under **BBMP.** The 50000 litres leachate was pumped into a Tank and its Lab test results are as under.

Date of Sample	COD	BOD	TDS	TSS	pH
PRE TREATMENT					
28.08.20	40800	5850	46060	539	3.7
After First Treatment on 28.08.2020					
03.09.20	27200				
10.09.20	12800				
After Second Treatment on 22.09.2020					
29.09.20	10000	2600	13000	150	7.1
07.10.20	4925.6				
After Third Treatment on 22.10.2020					
29.10.20	2881.9				
04.02.21	1979.6	228	2656	227	8.56





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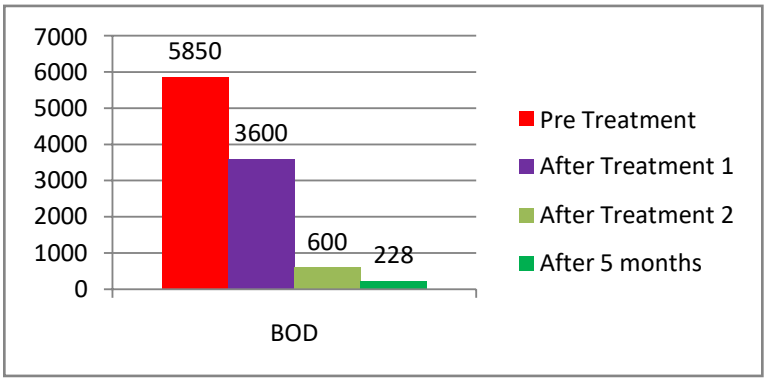

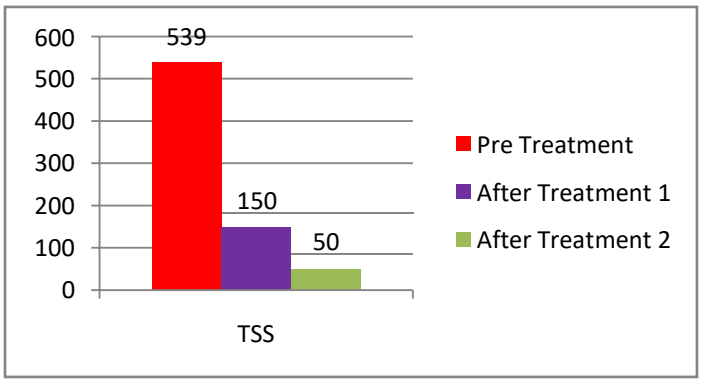

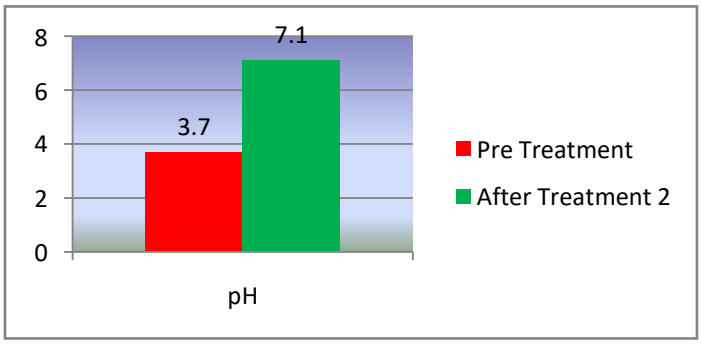

Conclusion:- The results prove that the Probiotics treated waste water or leachate remains clean without further treatment also. Hence, this treatment is suitable for Primary treatment to reduce the sludge (Organic and Inorganic), improve BoD, CoD, TDS and TSS, improve pH in this trial. With other results it has reduced Nitrates, Phosphates, Ammonia, Turbidity, Coliform, E-Coli, etc. Polluted lakes, flowing sewage drains and flowing water bodies can also be treated using the same Biotech with Probiotics and additional natural extracts.

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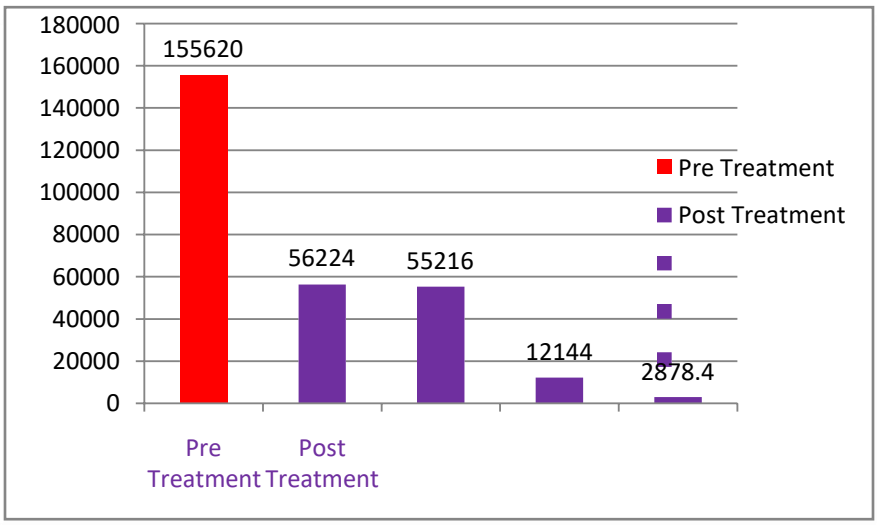
Another case study of Leachate treatment was undertaken at Doddabidurukallu SWM plant by BBMP where residual Leachate concentrate was available. The 1000000 litres leachate was pumped into a Tank and its initial test results are as under.

Sl.	Particulars	Pre Treatment	Post Treatment			
		23.12.2020	28.12.2020	27.01.2021	12.04.21	
1	pH @25°C	5.9		6.82		**8.23**
2	Total Dissolved Solids	47038		41395		**16700**
3	Total Suspended Solids	13642		1510		**24.3**
4	Chemical Oxygen Demand	155620	56224	55216	12144	**2878.4**
5	Biological Oxtgen Demand	33000		27000		**1100**

COD



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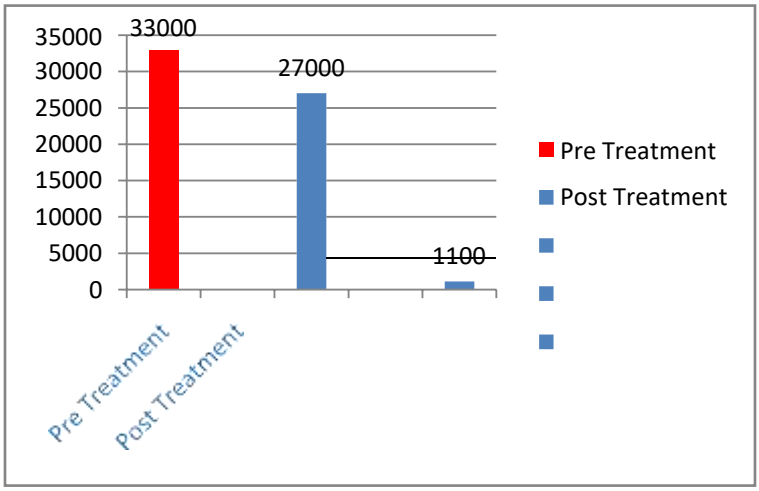
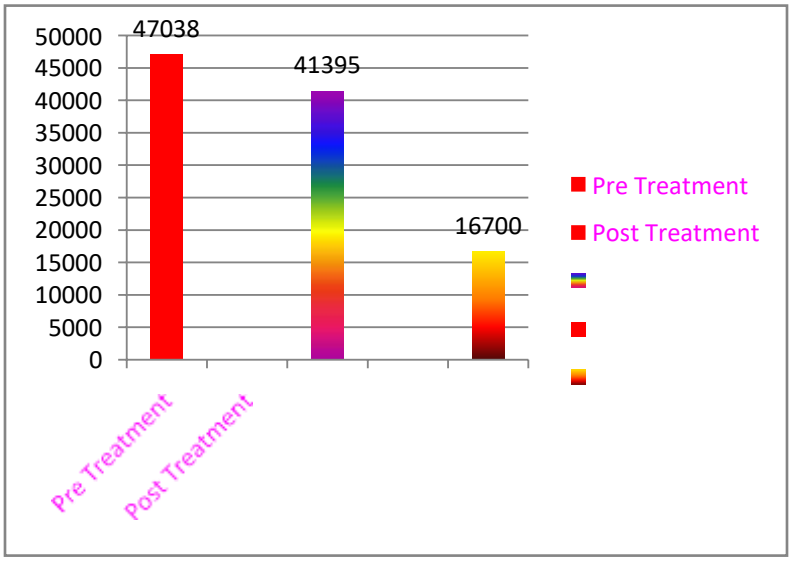
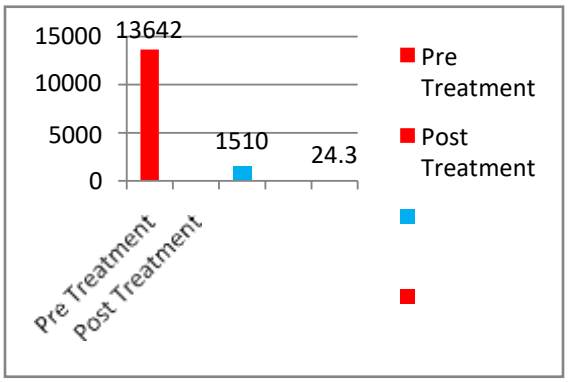
BOD



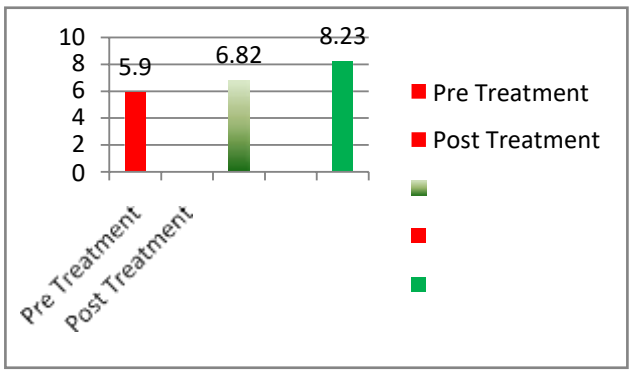
TDS



TSS



pH



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Introduction – Water Bio Remidiation

The implementation of various developmental projects and rapid industrialization globally led to the generation of waste material consisting of organic, inorganic, heavy metals etc., majority of which, are hazardous and have a serious influence in environmental degradation. As the above waste material finds its way into the water bodies, the negative influence on the environment is reflected in affecting Health of people, Aquatic life and reduced agricultural yields. It has become a gigantic task of treatment and management.

Various technologies developed to resolve the above issues for the treatment and management of these wastes included physical, chemical, and biological methods either individually or in combination. The most easy and economical method found suitable and eco-friendly is bioremediation processes.

Bioremediation processes

- use Natural microorganisms to breakdown toxic, hazardous substances by aerobic and anaerobic means.
- Can be applied at *site* or off site in treatment plants.

The main types of Bioremediation comprise of:

Bio-stimulation: Nutrients and oxygen are added to the contaminated water leading to the growth and activity of bacteria. This results in the reduction of the pollutants. The progress of the remediation process is evaluated by checking the contaminant levels.

Bio-augmentation: Microorganisms known to treat a particular contaminant are added to the polluted water in treatment of pond or tank. This method is suitable for off site treatment of the contaminants as the desired conditions for microorganisms growth cannot be made available at site. In this case, the reaction time can be controlled.

Intrinsic Bioremediation: This remediation process is taking place naturally in polluted medium. This process is due to the activity of microorganisms and is observed in areas affected by petroleum contamination.

The above methods are either used individually or in combination. For solid waste, soil or sludge the nutrients and oxygen is made available by the use of suitable mixing techniques.

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Main causes for increased Pollution

1. **Population of India** : set to raise from 1.1 billion to 1.7 Billion by 2020. Increased population puts additional pressure on Water resources, Food and other necessities.

Human intervention is leading to alarming levels of environment degradation, especially water resources.

2. **Disposal of waste**: Improper disposal of domestic and industrial waste is causing water quality deterioration and pollution.

Ponds, Lakes & Rivers all over the country are turning unfit for drinking or Agriculture.

Management of water bodies as well as control of sewage is important to conserve water resources for sustainable usage.

- Improper disposal of domestic and industrial waste pollutes Ponds and Rivers.
- Chemical deposits and organic wastes settle in water bodies.
- Growth of weeds and algal blooms cause eutrophication.
- Detritus reduces the dissolved oxygen level and thus makes it unfit for drinking purposes, Aquatic life or irrigation.
- Surrounding environment including the ground water table gets polluted.
- Major health impact due to continued dependence on such water bodies.
- Loss of valuable revenue as well as foreign exchange affecting tourism industry.
- Ministry of Environment and forestry lists 31 polluted rivers along 157 cities across 18 states in its annual report.
- Estimated 5000 crores is being made available for solving this environmental problem.

HUSSAIN SAGAR(HYDERABAD), JAISAMUND(RAJASTHAN), CHOTA and

BADA TAALAB(Bhopal), DAL Lake (SRINAGAR) , nine lakes in and around

NAINITAL, BHEEMTAL are some of the polluted lakes across the nation.

Risks and the methods of addressing:

Both organic and inorganic contaminants of toxic nature posing health risks need treatment. They include hydrocarbons, As, Cd, Hg, Ni, Pb, Zn as well as radioactive elements. Bioremediation has been widely investigated with strict regulatory requirements being imposed world over. These methods are implemented as they do not leave a toxic residue after treatment. The treatment results in degradation of the toxic waste into harmless substances like water and carbon dioxide. Micro organisms utilize toxic materials as a source of energy to degrade them through aerobic, anaerobic respiration, fermentation, etc.

Since the methods have been well investigated and reported in literature, we would like to mention some of our experiences and results as illustration.

Technologies for water management

Prolonged use of chemicals and chemical technology affects the environment adversely.

Toxic residues remain affecting future hydrological cycles.

STP's initial cost is very high, needs huge tract of land and machinery, annual maintenance cost is also very high.

UFO BIOSOL INDIA Pvt. Ltd. have jointly developed along with Padmaja Agro a unique Bio-remediation technology for the treatment and reduction of the pollutants in sewage plants, tanks, reservoirs, ponds and lakes. This technology developed breaks down the pollutants to improve water quality and has proven to be safe and eco-friendly.

The technology comprises of the use of **pro-biotic** which controls / regulates pH, COD, BOD, TDS, TSS, Sulphates, Ammonical Nitrogen, Phosphates, Fluorides, Calcium, Oils & Grease etc. The combined culture technology controls so many other factors.

METHODOLOGY:-

1. A product namely pro-biotic is used for purification of water containing enzymes produced by fermentation process at our research center. These enzymes break down the pollutions thus reducing BOD, COD, TSS, Phosphates, Nitrates, potash and Sulphates.
2. Suitable plant extracts from different sources of forestry products are collected and combined to make natural herbal alkaloids in the form of herbal suspension that breaks down algae up to 70%.
3. A Herbal extract out of plants and flowers is used to destroy the excessive bacteria, fungi and coliforms.
4. Finally, the sludge at the bottom of the lake which is basically containing organic matter and inorganic chemicals is treated with specifically designed enzymes and plant extracts. When the product applied, the sludge blanket will be oxidized. The organic / inorganic matter gets converted into gases. Thus gradually reduces the sludge blanket thickness of organic matter except silt / grit

Comparison of STP v/s Bio Remediation

The following table outlines the Advantages of Bio-Remediation Process against STP technology

Sl.No.	STP(Conventional Method)	BIO – Remediation (Advanced technology)
1	Needs Huge Land	Needs just a storage tank of 100 – 2000lts area $10m^2$
2	Requires long time for project implementation.	Requires ONE WEEK to start the operation.
3	Initial set up cost is very high.	No initial Set Up cost. machinery.
4	Volume dependent and multiple locations increase cost significantly.	Volume dependent and multiple locations in case of rivers and long sewage canals but cost increase is negligible.
5	Machinery cost is huge.	Needs only dilution tank and no need of any machinery except small sprayer.
6	Power consumption at average of 50HP/MLD	No power requirement. Cost of sprayer is negligible.
7	Huge Manpower required to operate and maintain.	Single person operation and no maintenance required.
8	Sludge formation at plant needs frequent removal	No sludge formation
9	Treatment of water at site only.	Treat water from beginning to end of canal.
10	Canal needs cleaning, desilting, sludge removing and transporting which is highly expensive.	BIO-Remediation cleans the canal and removes all organic sludge from upstream till the end ensuring better flow. Cost of sludge removal and transport is totally eliminated.
11	Less possibility of reducing Inorganic Chemicals.	Reduces Inorganic chemicals such as Cadmium, Chromium, fluorides etc.
12	Further treatment required for use in aqua and agricultrure use.	Most suitable for use except domestic consumption.
13	Pungent smell and bad odour remains.	Removes pungent smell and no bad odour.
14	Water treatment / Purification cost per m^3 is high approximately around Rs. $10/m^{3\ water}$	Nominal cost for treatment of m^3 water.
15	Continuous Operation	Enzymes treat water for upto 15days.
16		Can be used to remove Refinery sludge's and tannery chemicals.
17		Useful to clean Lakes, Ponds, Rivers and Offshore lines for detoxification.

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Advantages of Bio-remediation process: -

Bio-remediation is simple, cheap and effective on a sustainable basis.

No after-effects on water quality or environment.

Aquatic life can be rejuvenated after bio-remediation.

Rejuvenated water bodies improve agricultural productivity on a sustainable basis.

BIO – REMEDIATION TESTS CONDUCTED IN A.P :

We have taken up demonstration in ANDHRA PRADESH through the ministry of environment government of ANDHRA PRADESH Hyderabad, cleaning of Banjara lake in Hyderabad, and the said demonstration was highly successful. The AP pollution control board central laboratory gave its analysis report.

ANDHRA PRADESH POLLUTION CONTROL BOARD – HYDERABAD

CENTRAL LABORATORY – ANALYSIS REPORT

Sl.No	Parameters	Before Treatment	After Treatment
1	PH	7.24	7.78
2	TOTAL SOLIDS	1193	872
3	TOTAL SUSPENDED SOLIDS	338	87
4	NITRATE AS N	20.2	3.0
5	FLUORIDE AS F	1.10	0.96
6	PHOSPHATE AS PO4	28.8	9.7
7	C O D	413	87
8	B O D	165	19
9	TOTAL COLIFORM (CFU/ML)	75000	1640
10	E COLIFORM (CFU/ML)	30500	1160

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BIO REMEDATION TEST CONDUCTED - Secreteriat, New Delhi.

The pollution abatement and treatment was conducted in the lake behind DELHI secretariat. The experiment was started on2nd September 2004 and completed by 17th September 2004. The results obtained were highly encouraging and the results in improving water quality on sustainable basis through bio-remediation methods were closely monitored by DELHI JAL BOARD. The results of experiment given by the quality control laboratory, DELHI JAL BOARD are shown below.

Delhi Jal Board Quality Control Laboratory, W.W.Wazirabad

Sl.No	Parameters	Before Treatment 02-09-2004	After Treatment 17-09-2004
1	TURBIDITY	115 NTU	18.6NTU
2	PH	8.9	8.4
3	C O D	37 mg/L	24 mg/L
4	B O D	4.6 mg/L	3.6 mg/L
5	COLIFORM count	2100 MPN/100ml	1100 MPN/100ml

Results of water analysis of lake inside new secretariat, New Delhi

Another large scale demonstration was taken at PALWAL village FARIDABAD sewage plant, near DELHI. The capacity of this sewage treatment plant is 20MLD under YAMUNA action plant – 1. In this case the treatment was monitored by TOKYO engineering consultants. The pollution abatement treatment was under taken for 15 days, starting from 10th JUNE to 25th JUNE 2007. The test results are given in The flow is allowed to pass through their polishing pounds where it is observed that the retention time is found to be about 24 hours.

STAR WIRE (INDIA) LTD – NEW DELHI
(DIAGNOSTIC CENTER) - TEST CERTIFICATE

Condensed Analysis Before and After Treatment

Sl.No	Parameters	Before Treatment	After Treatment
1	PH	8.47	8.27
2	TOTAL SOLIDS	436	56
3	NITRATE AS N	31.2	21.1
4	C O D	335	103
5	B O D	132	26
6	SULPHATES	126	78
7	OIL AND GREASE	6.0	4.0

The results indicate the success of the treatment.

The below pictures show the pictures of trial conducted at SION Lake, Mumbai where in the water was treated fully. The lake management has informed that the water is clear, Aquatic life is thriving, Water is purified such that there is no irritation which was causing earlier. The Lab reports for both before and after water treatment is below for comparison.

Sion Lake 1 Before Cleaning chemical contamination

Sion Lake 3 Before Cleaning Floating Debris

Sion Lake 2 One month after Bio Remediation treatment

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MUNICIPAL CORPORATION OF GREATER MUMBAI

No. E.E.M./Sew/ 757 City — 8 FEB 2013

Dadar Laboratory

Supdt. Chemist
Dadar Sewerage Lab

Dt.: 4.2.13

Subject: Carrying tests for Sion Lake water & sludge

Ref: No. AE/(SWM) F/N / 7789 / I.O. dt. 09/01/2013

With the above reference, the analytical findings of sample from Sion Lake are as follows.

Sample received on: 09/01/2013.

Sr.No.	Parameters	Findings
1	Appearance	Clear
2	pH	6.9
3	BOD	160 mg /l
4	COD	199 mg /l
5	Chlorides	50 mg /l
6	TSS	817 mg /l
7	Free Ammonia	2.80 mg /l
8	Turbidity	1230 NTU

Forwarded for your information please.

22 FEB 2013

Supdt. Chemist

E.E.Mech (Sew)City -I

AE/SE (Env)/SE/(SWM) SE (SWM)

1. Pl.

2. Pl.

A.E.(SWM)(W)-I

Water Contamination report before treatment of SION LAKE

Supdt. Chemist 429
Dadar Sewerage Lab
Dt. 1.04.2013

MUNICIPAL CORPORATION OF GREATER MUMBAI
No. E.E.M./Sew/.....126.....City-I 5 APR 2013
Dadar Laboratory

Subject: Carrying tests for Sion Lake water & sludge

Ref: No. AE/ (SWM) F/N / 10076 / dt. 19/03/2013

With the above reference, the analytical findings of sample from Sion Lake are as follows.

Sample received on: 20/03/2013.

Sr.No.	Parameters	Findings
1	Appearance	Clear
2	pH	7.3
3	BOD	3.2 mg /l
4	COD	26 mg /l
5	Chlorides	50 mg /l
6	TSS	6.34 mg /l
7	Free Ammonia	BDL

Forwarded for your information please.

3/4/13
Supdt. Chemist

3.4.2013
E.E.Mech (Sew) City -1

A.E. (SWM) F/North

Water Contamination report After treatment of SION LAKE

Arrows point to the reduced level

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Samples are collected from polishing pond at inlet and outlet (Faridabad)

The third largest scale demonstration was taken at KEHOPUR, sewage treatment plant, western DLEHI, NEW DELHI- 18. The treatment was monitored by the Director, DELHI JAL BOARD. MR. RANBHIR YADAV (Drainage) and analysis were done in their central control laboratory, the experiment carried over from 28th NOV 2007 to 11th DEC 2007. The analysis report are given here.

In this case the water hardly flowed for about 16 hours only and left into main drainage entering into river YAMUNA . Because of lesser contract time of our enzymes, we got <70% reduction.

Treatment of industries effluent was taken up in industrial sector at , SAHAKARI DUDH UTPADAK AND PRIKRIYA SANGH MARYADIT, SANGAMNEER, SANGAMNEER TALUKA MAHARASTRA. The analysis report of effluent samples was tested by ENVIRO LABS, THANE. The results confirm success of pollution control technology

DELHI JAL BOARD
OFFICE OF THE EX.ENGINEER (SDW) VI
SEWAGE TREATMENT PLANT: KESHOPUR: NEW DELHI –18.

Sub: Analysis report of culture treatment(Bio –remediation technology) of M/S Padamja Agro Genetics Pvt. Ltd.(A.P.) at 12 M.G.D plant w.e.f 27.11.2007. to 11.12.2007. flow taken approx.2 M.L.D.

DATED	RAW SEWAGE				FINAL EFFLUENT			
	PH	Susp. Solids (mg/l)	B.O.D (mg/l)	C.O.D (mg/l)	PH	Susp. Solids (mg/l)	B.O.D (mg/l)	C.O.D (mg/l)
28.11.07	7.2	432	303	-	7.5	118	95	-
29.11.07	7.2	444	230	-	7.4	66	69	-
30.11.07	7.2	376	258	-	7.4	84	54	-
01.12.07	7.2	548	318	738	7.4	70	84	198
03.12.07	7.2	452	227	-	7.4	68	90	-
04.12.07	7.2	308	272	-	7.4	68	80	-
05.12.07	7.2	660	323	810	7.4	78	102	220
06.12.07	7.3	408	280	-	7.4	62	106	-
07.12.07	7.2	560	361	-	7.4	94	107	-
08.12.07	7.2	332	251	680	7.4	68	72	200
09.12.07	7.2	468	328	-	7.4	67	90	-
10.12.07	7.2	364	225	-	7.4	60	69	-
11.12.07	7.2	444	333	-	7.4	65	100	-

6562
14/12/07
Ex.Eng.(SDW)VI
A.C.W.A
Dr. Sh. G. V. Rama Raju
Contact time in 16 hours

Sl.No	Parameters	Before Treatment	After Treatment
1	PH	7.3	8.0
2	TOTAL DISSOLVED SOLIDS	1528 mg/L	664mg/L
3	TOTAL SUSPENDED SOLIDS	422 mg/L	62 mg/L
4	B O D	1020 mg/L as O_2	12 mg/L as O_2
5	C O D	2088 mg/L as O_2	150 mg/L as O_2
6	CHLORIDES	110 mg/L as CL	150 mg/L as CL
7	OIL AND GREASE	22 mg/L	NIL

Figure 1 Dorekere Lake wetland before cleaning

This is a milk processing industry established in co-operative sector for the collection of milk from across the state of Maharashtra. The plant capacity was about 400 thousands liters per day. They were manufacturing clarified butter (Ghee) and cottage cheese (Paneer). For cleaning the area and the milk containers used, around 4 to 6 hundred thousand liters of water was used. The water which was used for the above purpose was getting polluted and pollution levels reached alarming levels. The water left the premises without being adequately treated. The affluent treatment plant constructed by the management did not have sufficient capacity to bring down the pollutants as per the required norms.

Figure 2 Dorekere Lake wetland after 6th day of cleaning

A criminal case was registered by Maharashtra State Pollution Control Board. Bombay high court issued a non bailable warrant. The effluent sewage was treated using bioremediation technology and the treated samples were tested by Envirolabs, a testing laboratory approved by the Ministry of Environment, Government of India. There was a considerable decrease in Total suspended solids, Total dissolved solids, B.O.D., CO.D. .values. Also, oil and grease were absent in the treated water. As a result of the treatment, the contaminant levels were reduced to the desired acceptable limits.

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Solid Waste Management

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Present problems

There is untreated solid waste which is being collated, shredded, incubated and residue disposed. The uncontrolled dump has resulted in surface water and ground water contamination by Leachate and emanating foul smell around the dump. The citizens have complained about both problems and serious action is required to eliminate the same.

Figure 3 Spray on the solid waste mound.

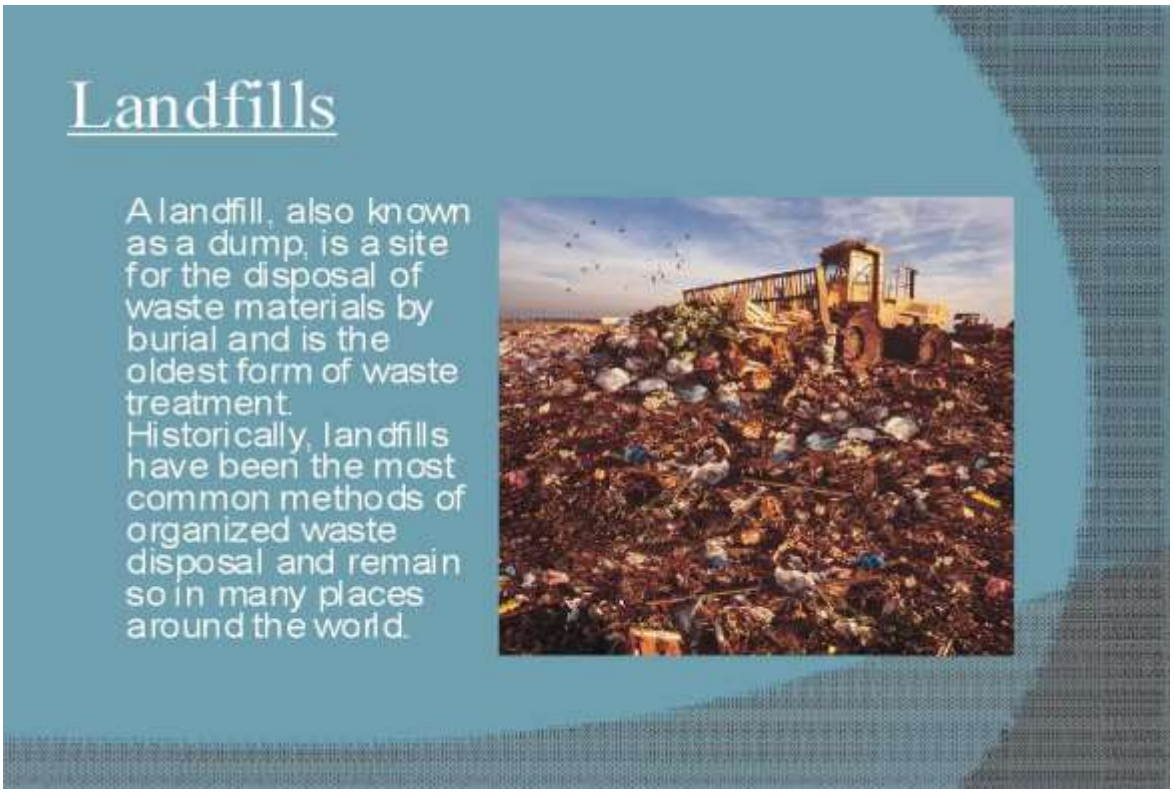
The present process is supplemented with water spray jets and the leachate is drained into the neighbouring river/water body which causes serious problems with its toxicity and needs treatment.

Our proposal:

The bio-remediation process helps to solve both the issues of foul odor and leachate contamination. Enclosed is our Technology, advantages, trials to various authorities throughout India to clean the water. Our Pro-biotic is capable of cleaning the water of its organic contamination and most of the inorganic contamination. Our technology is suitable for cleaning the stagnant and flowing water.

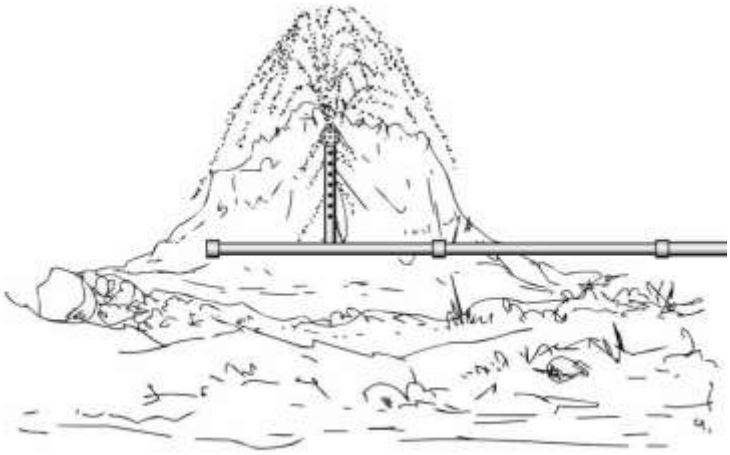
We propose to clean the fully contaminated leachate and other contaminants flowing to the nearby River. Applying Pro-Biotic will clean the water and make it suitable for reuse. we will set up power sprayers to the mound of garbage at the landfill and the leachate will be released of its organic contaminants. Also the pro-biotic will react with the organic and inorganic contents of the waste. The odor is reduced completely within ONE month. By continuous spray of the water with pro-biotic, the waste at site will be free of contamination and foul odor within 3 months at the maximum.

The organic waste free of contamination will be treated with our microbes to make it natural compost for use in agriculture, floriculture, horticulture, etc., which can be distributed through the departments of Agriculture and Horticulture as subsided govt. product and this product saves about 80% of urea being used by the farmers and also the product is eco-friendly and can be used on sustainable basis for all the crops. It is going to be a base material for organic farming.



What do we do with the Garbage?

There is long term cost, environmental, aesthetic and health benefits of covering the landfill and directing toxicity to managed sites instead of contaminated ground water.



Water sprayed from above the garbage mound to form leachate containing toxicity from the waste.

*One pipe for illustration purposes only. Multiple spray pipes will be used for large piles

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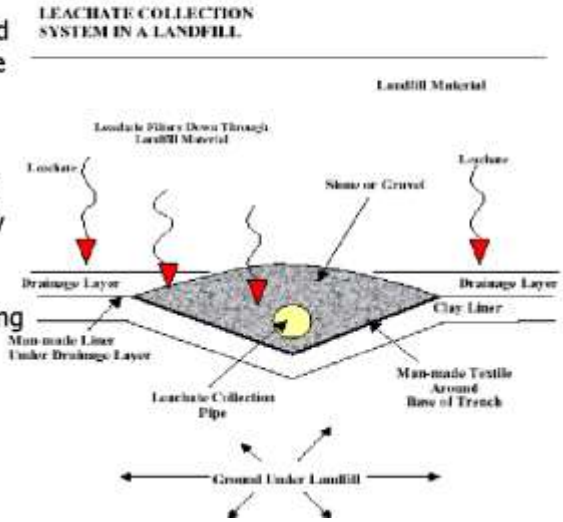
Leachate collection system

- Leachate may be defined as the liquid that has percolated through solidwaste and has extracted dissolved or suspended materials from it.
- The rate of seepage of leachate from the bottom of a landfill is estimated by Darcys law.
- The use of clay has favored in reducing the leachate percolation .



Leachate Problems

- they clog up from silt or mud;
- they can clog up because of growth of microorganisms in the pipes;
- they can clog up because of a chemical reaction leading to the precipitation of minerals in the pipes; or
- the pipes become weakened by chemical attack (acids, solvents, oxidizing agents, or corrosion) and may then be crushed by the tons of garbage piled on them.

Our methodology:

- A consortium of Enzymes / Photo Synthesiser Culture which are capable to break down pollutants by oxidation process are sprayed to treat solid waste from toxicity, odor and other pollutants. These enzymes, in diluted form, shall be sprayed on the surface area of the mound.

- Over a period of 24-48 hours these enzymes break down the toxins into respective gases, thus the toxicity comes down to the minimum level. Methane, Carbon dioxide, traces of Sulpher Dioxide, etc escapes from the upper surface and the entire area will be free from foul odor and stinky smell.

- 3 Lts / Ton of Enzymes / Photo Synthesiser Culture is required to clear these heaps of organic waste. Suitable proportion of dilution is essential depending on waste content.

- For operational convenience a bound wall of approximately 1 meter height be built around the perimeter of the mound. Requisite number of sprinklers will be erected. The water will be sprayed from the sprinklers continuously. The penetrated water is going to be taken down through the river where we add additional enzymes to continue the reaction if required.
- Preferred spray pattern will be at every 6" height while heap is forming or continuous mix with the processed organic waste for improved reduction of foul odor.

- Once the heap is formed, the heap will be covered by tarpaulin or any heat retainer cover for incubation.

- Once the heap attains the max temp and starts cooling down to room temperature, the residual heap can be treated with our Bio Fertiliser – Sanjeevini. This will produce one of the best fertilizer for use in Agri/Horti/Flori culture and **will bring huge revenue**.

BIO SOL

Bio – Technology –Organic Farming with high yield

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COMPANY INTRODUCTION

Bio – Technology –Organic Farming with high yield

UFO BIOSOL INDIA PVT LTD is a subsidiary of BIO SOLUTIONS AUSTRALIA PTY LTD, Sydney, Australia. The company has tied up with many renowned scientists for diversified activities in Bio-technology for Agriculture, Treatment of water bodies, Weed Control, Pest control and hygiene management in health care. The products are extensively trialed for best results and suitability in wide arenas before introducing to the end users.
Extensive lab trials have proven advantage of our product in varied conditions and certification for Organic farming input is underway.

1. AGRICULTURE / HORTICULTURE / FLORICULTURE / SERICULTURE

We are manufacturing different combinations of **Bacterial Cultures** and **Enzymes**. These combinations helps **DETOXIFYING toxic residues accumulated by the usage of chemical fertilizers, Pesticides, other deadly chemicals in agriculture and industrial soils** during last few decades. The above concept helps to neutralise the soil PH from 9 to 7 or from 4 to 7 with a considerable reduction of soil hardness.

LIQUID BIOFERTILIZER – BIO SOL - AGRI
Liquid Bio-fertilizer(LBF), is made out of living eco-friendly consortia of Bacteria. This liquid contains N_2 fixing, phosphates solubilising, Potash Oxidising, Sulphur Acidfying Bacteria, Organic Carbon improving (in soil) culture, and also pH stabilizing bacteria.

WHY LIQUID BIO-FERTILIZER?

- **Higher yield & better quality of grains, tuber / fruit crops**
- **Improvement of soil texture and fertility resulting in sustainable development**
- **Less water requirement for raising crops**
- **Cost effective**

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- **No side effect on soil fertility or on crops**
- **Better environment and improved hygienic condition**

ADVANTAGES OF BIO SOL – AGRI

- **Seed Dressing,**
- **Easy & non laborious process. Application of LBF by spray / Drip Irrigation**
- **Elimination / Reduction of chemicals, LBF mineralizes organic waste resulting in high bacterial counts and greater availability of nutrients**
- **LBF breaks down organic matter on continuous basis and releases nutrients slowly for a longer period spread over a few weeks.**
- **Higher absorption of soil moisture enables good growth of crops even in dry weather**
- **No side or ill effects on soil and negative impact on plants by using LBF.**
- **Environment friendly and ecologically sustainable**
- **Organically grown food crops have higher demand and fetch higher prices in international and national markets**

This combined culture helps in affixing **atmospheric nitrogen** to the maximum extent naturally to the crops depending upon soil riches, nutrients, Quality of water, etc.

- Further the combination solublises phosphates, oxides potash and acidifies sulphates into acids.
- Trico derma Verde improves root resistance even at high temperatures and converts leafy matter/trash/ organic residues in to organic carbon.
- This plays a vital role for improving porosity of the soil, water retention, helping further multiplication of bacteria causes releasing organic acids to bring down soil P^h to neutral.
- Another combination increases the soil Ph from 4 to 7. This takes place during the crop season itself helping in reduction of chemical fertilizers and pesticide demand depending upon initial soil conditions and farmer practices.

This helps to **improve the agriculture production from 25% to 50% organically** during the duration of the crop itself. The nutritional value and retaining quality of soil multiplies. The above concentrate tried across the country for **Sugar Cane, Wheat, Soya, Strawberry, Capsicum, Mango, Chilly, Orange, Corn, Maize, Grapes, Tomato, Potato, Banana, Coconuts, Basmati And Onion which reached up to 32 tons per acre.**

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Summary of different crops

Sl. No.	CROP	PRODUCTION IN QUINTALS per ACRE			AVERAGE EXTRA INCOME/ACRE
		Normal Plot	Controlled Plot	Increase up to	
1	WHEAT	14	26	12 Qntls	Rs. 48000
2	SOYBEAN	10	16	6 Qntls	Rs. 28000
3	ONION	21	32	11 Tons	Rs. 32000 - 70000
4	SUGARCANE	70	95	25 Tons	Rs. 50000 - 65000
5	GRAPES	25	28	3 – 5 Tons	Rs. 90000 – 150000
6	SESAME	3 - 5	8	3 – 5 Qntls	Rs. 50000 – 70000
7	Basmathi Rice (Sugandhi 2)	20	35 / Acre	15 Qntls	Rs. 90000 – 120000
8	BANANA	30 – 40Kg	40 – 50Kg / plant	10Kg per plant	Rs.50000 – 70000
9	Capsicum	25	40	15 Qntls	Rs.30000 - 45000
10	Maize	25	40	15 Qntls	

*** Chemical fertilizer usage reduced 50-100%**

Application Procedure:

Seed Dressing:- The volume of usage of BIOSOL AGRI varies according to type of seed. Eg: for soya / wheat, for a volume of 50kgs, take 5kgs of vermin compost or any animal / Plant dry manure, add 250ml of our culture, mix thoroughly and sprinkle enough water, mix again, keep the mixture in shade for about 4 hrs, then add this mixture to the seed and blend thoroughly such that the culture is coated on the seed surface. The seed can be broadcasted in 1 acre either manually or mechanically. This helps maximise germination and healthy root formation.

Root Dressing:

For Onion, Paddy, Strawberry, Tomato or wherever there is transplantation crops, take 250ml water, add about 250ml culture in sufficient Quantity of water, mix thoroughly. Then dip the roots of the plants ready for transplantation for 15 minutes before transplant. This maximizes plant survivability by increasing new healthy roots formation very fast.

First Spray of LBF:

Take 2lts of culture, dilute in 300 – 500 lts of water (Water should be free from any toxins like fluorine, bromine, sulphur-dioxide. Chlorine etc. which will kill the bacteria) This diluted culture can be sprayed

in 1 acre surface area on this transplanted land. Ensure that the soil is in wet condition before spraying the solution.

Second Spray of LBF :

After around 20 days, the second dose can be repeated in the similar way. The dosage varies from crop to crop. For eg: Soya, wheat, or any other short term cereal crop, total 6 lts are recommended for split dosage. However, if the culture spray is delayed, 5 lts can be taken at a time and can be sprayed after diluting with water on or before 45days from seed broadcasting.

For long term crops, eg: Sugarcane, Chico, Jam Fruit, Orange, Lemon, Banana, Pomegranate, Grapes, etc., Mix the culture with vermin compost or any animal / Plant dry manure, spread the mix in a shade area for 5 – 7 days and sprinkle water to keep the mixture damp, then transfer the mixture into a pit around the tree / plant at a depth of 6", close the pit and water the plant for next few days to keep the mixture in damp condition for better results. The quantity of mixture varies from crop to crop which can be clarified on case basis. Alternatively dilute the liquid

1. Weed Killer:

It's a herbo-chemical formulation which is highly effective against a variety of unwanted weed and grass species, besides being environmentally compatible with least or no irritation to the human skin and eyes. The formulation exhibits broad spectrum herbicidal activity or otherwise contact herbicide which has little or no residual soil activity as the composition is rapidly degraded and used as a nutrient source by soil microorganisms. The active ingredients in this are food grade emulsifiers, fatty acids and secondary plant metabolites.

2. Natural pesticides:

Natural Pesticides as an alternative to chemical pesticides. This product is meant for the total care of the agricultural as well as horticultural crops, flowers and fruits. It is available in both powder and liquid form with the variation in the active ingredients.

This product is to replace the currently using synthetic pesticides which contain large amounts of organic chlorine compounds, organic phosphoric compounds and heavy metal compounds such as copper, mercury, and arsenic compounds, since these chemicals are harmful to the human body / animals and contaminate the soil leading to a serious environment pollution. The Natural pesticide is effective against every kind of plant disease but is particularly excellent against the vegetables and fruits plant diseases and storage diseases. The main active ingredients are sodium bicarbonate, secondary plant metabolites and buffer salts and activators to activate the reactions.

3. Mosquito larvicidal oil:

This product is an excellent replacement to the synthetic base larvicidal agents. The combination is well balanced with least irritation to the user and highly toxic to the target organisms. Its biodegradable and environment friendly. It is also a blend of emulsifiers and secondary plant metabolites with fatty acids and buffer salts.

4. Water Remediation of Lakes / Ponds / Canals / Sewage / Rivers:

BIOSOL has achieved huge success in water treatment by removing and or reducing the contaminants to permissible limits for use in agriculture. Many ponds and lakes in rural India are highly polluted with every kind of chemical especially the fertilizer based chemicals by rampant use. The water has become highly salty affecting the agriculture in general and citizens health in particular leading to diseases. Our product PROBIOTIC BIOSOL - AQUA is capable of reducing these contaminants at affordable price and remove the contaminants including arsenic to permissible limits for agriculture purposes increasing the output and quality of life of rural citizens. Sewage water can be treated for upto 98% purity over a period of time and multitude treatment. We have proven lab reports of our trials conducted in various parts of India including major cities such as New Delhi, Mumbai, Hyderabad, Bhopal etc to name a few. The trend is catching up with ground water pollution increasing rampantly.

BIOSOL – contents for Agriculture

To Restore Normalcy : Bio inoculants came into use in solid from and contains N2 fixing bacteria, potassium acidifying bacteria, phosphate solublising bacteria and sulpher acidifying bacteria with Trico-derma-viride.

Varieties of Bio- Fertilizer

a) Azospirillum :

Azospirillum are nitrogen-fixing bacteria that lives in a symbiotic relationship in the root cortex of several tropical crops. They stimulate plant growth through nitrogen fixation and production of growth substances like auxins, gibberllins and cytokine. It is estimated that almost 10 to 15% of the required nitrogen can be met by Azospirillum biofertilizer.

b) Azotobacter:

Azotobacter are free-living, nitrogen-fixing bacteria and are known to produce several plant growth promoting substances. In addition to nitrogen fixation by these bacteria, they are also known to protect plants against pathogenic microorganisms either by discouraging their growth or by

destroying them. These inoculants need more attention in view of their triple action of nitrogen fixation, bio-control and production of plant growth regulators.

c) Rhizobium:

Rhizobium bacteria, basically form root nodules in leguminous plants and fix atmospheric nitrogen in a symbiotic association. The Rhizobium bacteria gives nitrogen to the plant and the plant gives protection to the bacteria from oxygen damage by harboring it inside the root nodule.

d) Acetobacter:

Is a genus of acetic acid bacteria characterized by the ability to convert ethanol to acetic late on it is noticed that this bacteria is having ability to fix atmospheric nitrogen to the root system of the plant.

e) Herbospirillum:

Another species having ability to fix nitrogen from the atmosphere. The combination of Acetobacter and Herbospirillum gives maximum
fixation of nitrogen from the atmosphere.

f) Trichoderma Viride:

Trichoderma viride is a fungus and a biofungicide. It is used for seed and soil treatment for suppression of various diseases caused by fungal pathogens. It is also a pathogen in its own right, causing green mould rot of onion.

g) Potash Oxidizing Bacteria:

This bacteria helps to break down potash in to soluble form to make it available to root system of the crop.

In this product a special type of combination of the bacteria is going to be available As **N P K S** with Tricoderma viride.

Acetobactor is for affixing atmospheric Nitrogen selected culture

Azosporillum is used For solublising Phosphate, Phosphate Solublising Bacteria is incorporated.

For Potash, Potash Oxidizing Bacteria is going to be used,

For Sulpher, Sulpher Acidifying Bacteria is going to be used.

Rhizobium Bacteria, basically form root nodules in leguminous plants and fix atmospheric nitrogen in a symbiotic way. The Rhizobium bacteria gives nitrogen to the plant and the plant gives protection to the bacteria from oxygen damage by harboring it inside the root nodule.
Depending upon local crops, the above bacteria culture are going to be made available.
Different Combination can be made based on the soil physical condition from place to place.
This culture is going to minimize the chemical fertilizer consumption and helps the soil to be porous to get extra yields.

a. Specification in general

- Basic Material : Carrier based of Vermi-compost/ Fresh Organic/ Sludge, Dried Cow dung
- Particle Size of Carrier : 0.15 – 0.2 IS Sieve
- Viable Cell Count (CFU) : 10^7/Gram
- pH : 6.5 – 7.5

Biosol Sanjeevini for Horticulture and Floriculture

We are promoting the use of Liquid Bio Fertilisers and herbal pest controls, combination of herb-chem solutions for weed controls in Floriculture, Gardening, Agriculture, Hydro, Landscaping, et., all.

Our product range includes different combinations of **Bacterial Cultures** and **Enzymes**. These helps **DETOXIFYING toxic residues accumulated by the usage of chemical fertilizers, Pesticides, other deadly chemicals in Floriculture / Horticulture / Agriculture and industrial soils** during last few decades. The above concept helps to neutralise the soil PH from 9 to 7 or from 4 to 7 with a considerable reduction of soil hardness.

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Bacteria, Organic Carbon improving (in soil) culture, and also pH stabilizing bacteria.

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WHY LIQUID BIO-FERTILIZER?

- **Higher yield & better quality of flowers, ornamental plants, herbs, medicinal plants, grains, tuber / fruit crops etc.**
- **Improvement of soil texture and fertility resulting in sustainable development**
- **Less water requirement for raising crops / Plants.**
- **Environment friendly and ecologically sustainable**

ADVANTAGES OF LIQUID BIO-FERTILIZER

- **Application of LBF by spray / Drip Irrigation**
- **Elimination / Reduction of chemicals, LBF mineralizes organic waste resulting in high bacterial counts and greater availability of nutrients**
- **LBF breaks down organic matter on continuous basis and releases nutrients slowly for a longer period spread over a few weeks.**
- **Higher absorption of soil moisture enables good growth of Plants even in dry weather**
- **Organically grown crops have higher demand and fetch higher prices in international and national markets**

This combined culture helps in affixing **atmospheric nitrogen** to the maximum extent of **300 kilos per acre** to the crops depending upon soil richness, nutrients, Quality of water, etc.

- Further the combination solublises phosphates, oxides potash and acidifies sulphates into acids.
- Trico derma Verde improves root resistance even at high temperatures and converts leafy matter/trash/ organic residues in to organic carbon.
- This plays a vital role for improving porosity of the soil, water retention, helping further multiplication of bacteria causes releasing organic acids to bring down soil P^h to neutral.
- Another combination increases the soil Ph from 4 to 7. This takes place during the crop season itself helping in reduction of chemical fertilizers and pesticide demand depending upon initial soil conditions and farmer practices.

The application needs two spray over a period of time in diluted form to enhance the soil fertility and better texture.