



➔ Aeration Lagoon 1
Bali Wastewater Plant

Benefits:

- ➔ Increased microbiological activity and efficiency of wastewater plant
- ➔ Large reduction of BOD, COD and FOG
- ➔ Total elimination of odour
- ➔ 70-80% Electricity reduction
- ➔ Sludge reduction
- ➔ Cleaner effluent water quality that expels into swampland then ocean
- ➔ No chemicals, bacteria or enzymes added
- ➔ The first time wastewater plant has achieved required COD levels of below 100mg/L consistently. Achieved while using less aeration
- ➔ Removes forecasted costly expansion & redesign of plant by use of BC-500



➔ Simple drip feed application
Dose: 40 Litres per day



➔ Reduction of Aerator requirement
Saving 70-80% Electricity

Biocelerator BC-500 excels in Indonesia's second largest wastewater plant

Suwung Wastewater Plant services the wastewater from Denpasar, Kuta and Sanur and is Bali's sole wastewater plant (with the exception of the Nusa Dua Lagoon which services the Nusa Dua resort area). This wastewater plant is the second largest in Indonesia.

Currently servicing 25 million litres per day the wastewater plant comprises of two large Aeration Lagoons and two large sedimentation lagoons with the final output being discharged into swamp land and then into the nearby Benoa Bay Harbour.

The plant also services the restaurant effluent of FOG (Fats, Oil and Grease) that are discharged into digester (400,000 litre capacity) that had many issues such as foul odour and disposal issues when disposed of onto drying beds.

Biocelerator met with management of Suwung in June 2019 and discovered a number of challenges the wastewater plant was experiencing, such as:

High electricity consumption due to expensive costs (\$20,000 USD monthly) of operating 16-18 Aerators daily and the maintenance issues and costs that encompass operating this many Aerators.

The wastewater plant had been under pressure by government environmental policy goals to achieve below 100mg/L of COD readings (tested at the outlet of the plant) as pollution of the surrounding environment and harbour area was at a critical level.

The sedimentation ponds were due to be dredged from 10 years of sludge buildup. Very strong odour was observed at the plant. A demonstration was organised to begin in July 2019 using 40 Litres of Biocelerator BC 500 by dribble feed tanks per day and manually pouring in 5 litres per day into the FOG digester by IPAL personnel.

RESULTS FROM DEMONSTRATION:

ODOUR OBJECTIVE ACHIEVED in 7 DAYS: Within 4 days the odour of the entire plant had significantly been reduced and within 3 more days there was no odour at all (with the exception of the two inlet points where untreated sewage enters the plant)

Due to the size of the plant over the next few months the aerators began to be turned off. This was a carefully managed process that was achieved by daily testing and checking bi-weekly COD testing, balancing of TSS (Total Suspended Solids) and DO (Dissolved Oxygen) levels to ensure safe operational management.

What was observed was an increase of TSS levels in the sedimentation lagoons. This increase is due to the high levels of aeration and Biocelerator BC 500 providing an environment for the sludge to 'eat itself' as it naturally would in a healthy microbiological process but at an extremely rapid rate using Biocelerator technology.

Once instructions from Biocelerator were followed in lowering the numbers of aerators operating the TSS levels dropped and in turn COD figures consistently lowered to below 100mg/L. (A figure which had not been achieved before with the historical data provided by Suwung WWTP).



Biocelerator-BC500

BIOLOGICAL MEDIUM STIMULANT TECHNOLOGY

→ Sedimentation Lagoon 1
Bali Wastewater Plant



AERATOR REDUCTION

Biocelerator successfully proved that with the use of only 4 aerators operating that COD levels of below 100mg/L were consistently achieved. Biocelerator is confident that only 2-3 aerators would be required for ongoing use in the near future (as opposed to the 12-16 aerator operating before).

A 70%-80% reduction of electricity consumption from aerator use was achieved successfully.

FOG DIGESTER DEMONSTRATION

With only 5 litres of BC-500 applied daily, the 400,000 litre per day digester experienced nearly instant odour reduction. Workers in this area were amazed by the elimination of odour only 3 days after dosing commenced. The sludge consistency went from a thick odorous effluent to a very thin non odorous effluent. A reduction of drying bed usage was also observed.

SLUDGE BREAKDOWN

From measuring TSS and the noticeable decrease in 'dead zones' in aeration pond 1. Biocelerator continual use has been proven to reduce sludge at an astonishing rate. While there was a lack of data from bathymetric testing before the trial, use of Biocelerator would alleviate any need for dredging in the future by continually reducing sludge content in an accelerated (but also natural) process. This provides a significant cost saving to the wastewater plant of approximately \$200,000 USD.

EXTRA BENEFITS

PUMP STATION AND SEWER LINE TREATMENT:

Dosing of pump stations situated further up the sewage feed line infrastructure will remove odour and clean the build up of sludge in the pipes. This in turn will greatly reduce pipe maintenance costs and increase the lifespan of existing reticulation and pumping infrastructure as well as totally eliminating odour before it reaches the plant.

ODOUR ELIMINATION FOR RESIDENTIAL AND TOURIST AREAS:

Bali and Indonesia has a challenge of foul odour emanating from open sewage vents, pipes and river ways. Biocelerator has proven its unique benefit of totally removing all odour from these areas, providing an optimised water environment that can process contaminants extremely efficiently.

Biocelerator BC-500 greatly accelerated natural biological processes to improve system efficiency without any need for chemicals or introducing foreign bacteria or enzymes. **Biocelerator is NOT a bacteria or an enzyme and is 100% non toxic with ZERO VOC.**

Suwung WWTP requested Indonesian government for adoption of Biocelerator BC 550 for year 2020 and beyond in their budget after judged the demonstration a success.

(For detailed data results of this completed project please contact us)



→ Fats, Oil & Grease Digester
Suwung Wastewater Plant

Summary Benefits

- Electricity savings of 70%-80% by reducing requirement of Aerator operation
- Odour Elimination of entire plant of over 50 million litre holding capacity
- Cleaner water effluent achieved with 70-80% less aeration (COD below 100mg/L)
- Greatly increased plant efficiency
- Sludge Reduction (Savings of \$200,000 USD approx sludge dredging requirement)
- Aerator Maintenance savings by only requiring 20%-30% aerators to be in operation
- Fats, Oil & Grease Digester benefits of less waste being laid on drying beds & improved odour

