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LATIN AMERICA



BIOTEC Plant in Aguan (Honduras)

NUEVA ESPERANZA (Argentina)



End of 2017, **BIOTEC** presented to the Municipality of Nueva Esperanza a feasibility study for the biogas supply to the Municipal Industrial Park, with the option of having a household biogas network within the urban area. **BIOTEC's** proposal is to develop the project by stages, beginning with an electricity generation power sales project of 2 MW (RenovAR Program).

AGUAN (Honduras)



After more than decade of proper operation, this remarkable biogas plant built by **BIOTEC** in Central America (**DINANT** group), is showing up brand-new covers (see picture above). Biotec was engaged to change the covers of these two biodigesters as it was planned from the beginning of its design and construction both activities done by Biotec. Thus, the superficial maintenance took place plus the change/cleaning of internal piping for biogas capture and air injection.

VILUCO (Argentina)

While this Biodiesel plant produces 370 MT of biodiesel/day from soy bean, it also produces some by-products and industrial wastewaters which serious challenges for their treatment. Throughout a year, **BIOTEC** operated a pilot plant with the ultimate target to guide **VILUCO** towards a better handling of its effluents.



CITRUSVIL-G (Argentina)



After 9 years of constant use of biogas in the boilers, **CITRUSVIL** decided to go for power generation for both self-consumption & excess power sale under the framework of the government RenovAR program. Two biogas gensets will be installed at the end of 2018. Payback-period-wise, the limiting factor is the short period during the harvest window. **BIOTEC** set up a Biogas Lab in-situ and is providing guidance to **CITRUSVIL** to complement its effluents with other feedstock during the non-harvest season, thus it can generate electricity 365 days a year.

CARTONES AMERICA (Colombia)



Since 1990 **BIOTEC** has been accompanying and supporting Cartones America - **CAME** - (320 Ton paper/day). During the first semester of 2018, **CAME** requested from **BIOTEC** a tailor-made service to optimize its biodigester UASB to deal with the new chemicals supplies that the paper industry is using presently. **BIOTEC** met this requirement thanks to its Biogas Lab facility at Finca Yambo (Cali).

STUDIES AND ENGINEERING FOR THE PALMICULTURAL SECTOR (Colombia)

Taking advantage of the experience for more than 30 years and knowledge on POME management in palm oil sector. **BIOTEC** has been hired in the last year by four colombian mills to carry out conceptual engineering / basic engineering of the effluent treatment system to be implemented, with energy use of the biogas generated.



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ASIA



BIOTEC Plant in Seraya Mill, Sabah, Malaysia

▶ SPOM OPENING CEREMONY (Sabah, Malaysia)



In October 2017, with the presence of the Chief Minister of Sabah, BENTA group officially inaugurated its Biogas Plant built by **BIOTEC** at the premises of Seraya Palm Oil Mill. The biodigester has a capacity of 25,000 m3. Biogas is used for electricity generation (KCP power consumption), and steam generation in the biomass boiler saving shell.

▶ UE SUSTAINABILITY AWARD



For its achievements on integrated & sustainable management of agribusiness by-products, more specifically from the Seraya Palm Oil Mill, **BIOTEC** was awarded (End of 2017) with the SUSTAINABILITY award given by the European Union which was handed by the EU Ambassador to Malaysia to the Commercial Manager of **BIOTEC** in Malaysia, Mr. Vincent Santantonio.

▶ NEW MSE PROJECT (Indonesia)

BIOTEC signed in February, a new Biogas Project with MAL Mill and its sister energy company MSE to generate 2 MW more in Bangka Island, Indonesia. It will be the third biogas plant in a row for **BIOTEC** in Bangka Island.



▶ BBS OPENING CEREMONY (Bangka, Indonesia)

Second biogas plant for BIOTEC in Bangka Island, Indonesia.

In May 2018, the company Bangka Biogas Synergy (BBS) inaugurated its biodigester RAC-20 by **BIOTEC** which generates 2 MW for power sale (PLN) to the grid. From 10th May, this plant generates 1.2 Million kWh/month on average.





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RESEARCH & DEVELOPMENT



BIOTEC has developed several concepts, products, and systems of its own in the last years, such as External Agitation/Recirculation/Purge System for Biodigester RAC-L (lagoons).

ENERGY FARMS



Objective: to prepare the energetic transition from fossil Natural Gas to renewable Natural Gas.

Feedstock: grass, king grass, maize and sorghum.

Regions: tropical and subtropical regions.

R&D: grass research started out in 2008.

Results: A new strategic alliance was formalized between BIOTEC and SAUTER to set up a new firm (Agrogaz) devoted to this purpose, products and service very well defined. In the majority of the countries, the focus is on the gas & electricity generation for non-interconnected zones.

Outstanding: In terms of R&D, there is an additional step to take place to combine BIOTEC mega-digesters technology with SAUTER aspersion technology to modify the agitation system.

EVAPO-DRYING



Nowadays, R&D efforts are focused on the transformation of Vinasses (Bioethanol) and POME into dry biofertilizers (5% moisture), powdered, soluble, high concentration of nutrients (28% of macronutrients and 50% of humus), and saleable. To this purpose, BIOTEC partnered with an Indian company specialized in evaporation and drying; and is seeking synergies with factories and trading companies of fertilizers.

Within the Palm Oil market, the biggest opportunities are in Malaysia where the mills must proceed with methane capture and treat their effluent to the point of having BOD below 20 ppm which represent a high CAPEX and OPEX. The launching of this new product & service, and our partnership will be done during POMREQ in November 2018, a big event held by MPOB which takes turns with the famous event PIPOC.

BIODIGESTION OF NEW FEEDSTOCKS

Our interest is in lemon peel and sugar press mud. Making use of the Biodigestion Lab at Finca Yambo (Cali), likewise offering tailor made services for agroindustry clients, BIOTEC is leading trials of methanisation from different feedstock with high potential but not currently used for this purpose in the industry.



EVENTS

In the second semester of 2017, BIOTEC has been present in important events such as:

- **Indonesia:** IPOC
- **Malaysia:** IGEM and PIPOC
- **Argentina:** RAMCC and CADER

In the first semester of 2018, BIOTEC has participated in:

- **Colombia:** BI-ON (Bioenergía, Cali, organized by the Chamber of Commerce of the City)
- **Argentina:** Official mission ("Princess Astrid") from Belgium

Second semester 2018:

- You can find us in events as **IGEM** (October) and **POMREQ** (November) in Malaysia.

METALLIC TANKS OF FAST ASSEMBLY



To speed up the assembly of biodigesters, especially in remote areas with low access, BIOTEC is developing with tank providers and structural engineers a new concept of fast assembly (30 days) which allows to reduce the works length and cost.