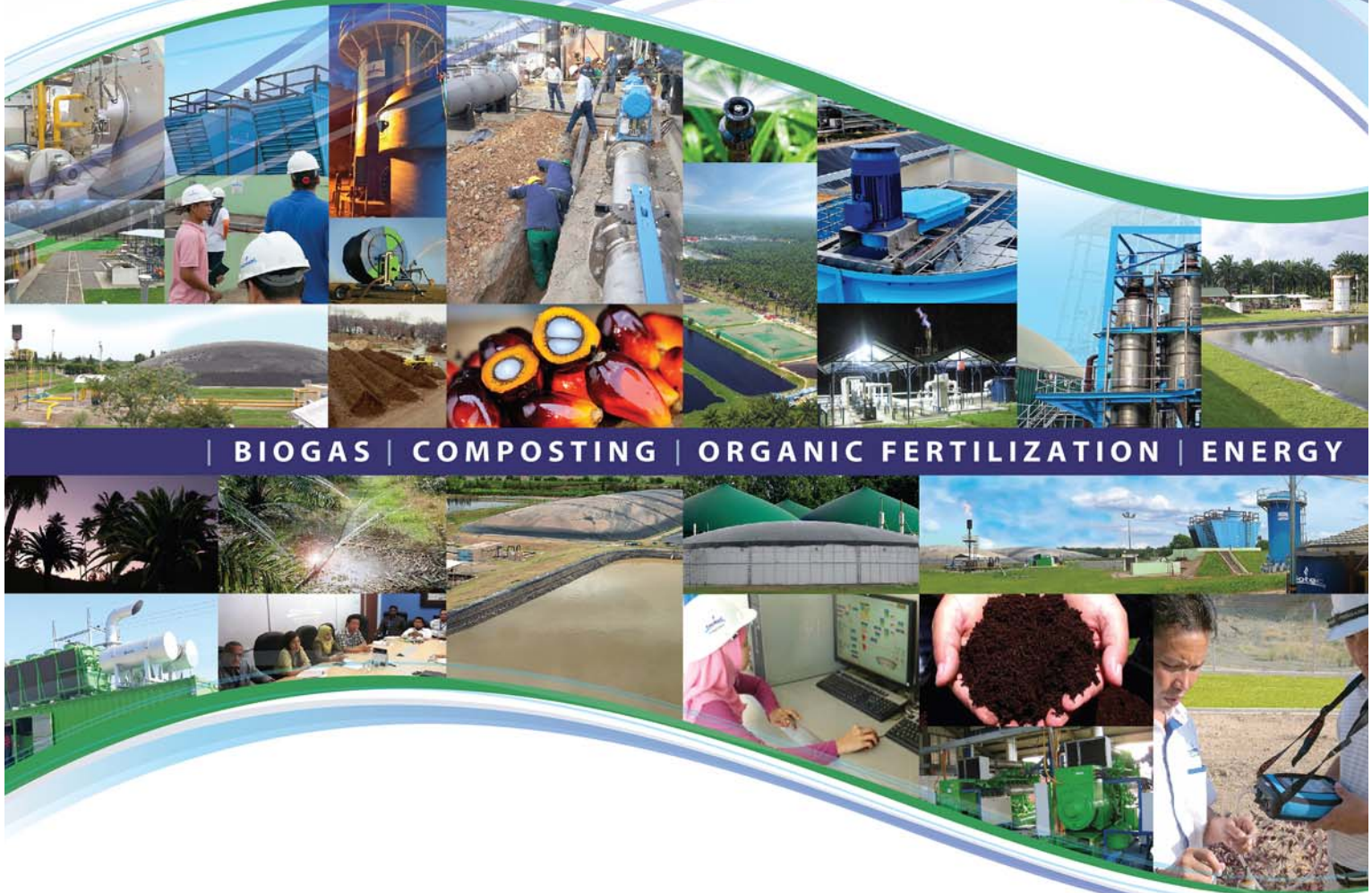


since 1984

PALM OIL SUSTAINABILITY

POME AND BY-PRODUCTS MANAGEMENT



www.bio-tec.net

RESULTS

World leader in different agro-industrial sectors

Palm Oil sector
Worldwide achievements

- 2nd** POME Biodigester in the world
(Palmeras del Llano, Colombia, 1988)
- 1st** Micro-aspersion liquid fertilization
(Palmar Sta. Elena, Colombia, 1991)
- 1st** Lagoon-based biodigester for POME
(Palmeiras, Colombia, 1999)
- 1st** CDM (+Gold Standard) project with POME
(Eecopalsa, Honduras, 2006)
- 1st** Macro-drip liquid fertilization system (with remote monitoring)
(Aguan, Honduras, 2010)
- 1st** Joint POME + Oleochemical biodigester
(AMSA, Colombia, 2014)

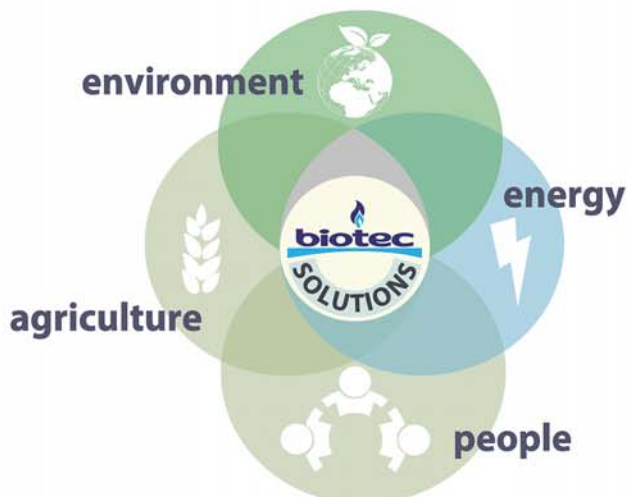
OTHER Biotec activities

OTHER AGRO-INDUSTRIES:
sugar cane, distilleries, starch, citrus, fruits, meat,...

OTHER SECTORS: Gas Farms
Renewable natural gas generation from grass and forage crops for:

- Local gas grids
- Local electricity grids
- Steam generation

SUSTAINABLE solutions



integrated management of organic matter

OBJECTIVE:

ZERO DISCHARGE

ENERGY VALUE:

$15 \frac{\text{m}^3 \text{CH}_4}{\text{T FFB}}$ | $60 \frac{\text{kWh}}{\text{T FFB}}$

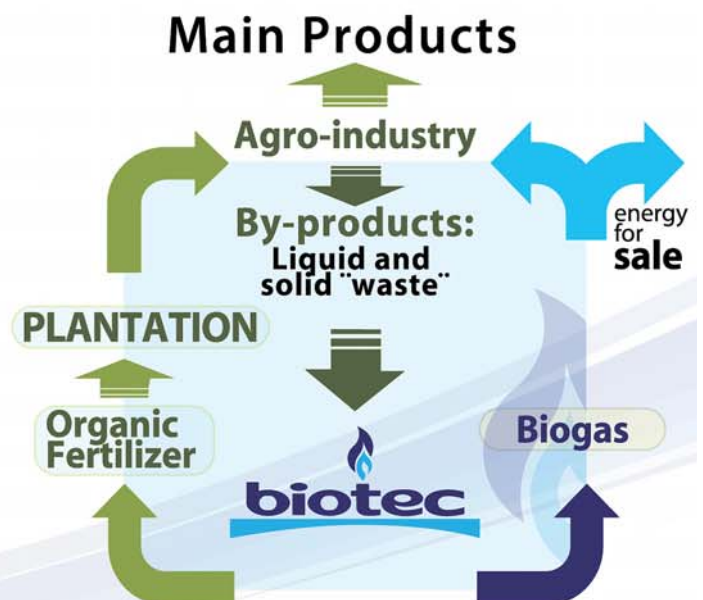
US\$ **6** / T FFB

FERTILIZER VALUE:

$1 \frac{\text{kg N} + \text{macro/micro nutrients}}{\text{T FFB}} + \text{organic matter}$

US\$ **5** / T FFB

BIOTEC Expertise



OUR ACHIEVEMENTS and references

Over the past 33 years, we have successfully implemented worldwide projects, turning POME into steam or electricity, as well as into liquid or dry organic fertilizer.

More than **25** POME biogas plants around the world



SERAYA MILL, Benta Wawasan 25.000 m³, 2017



PELAKAR MILL, Sinar Mas 20.000 m³, 2011



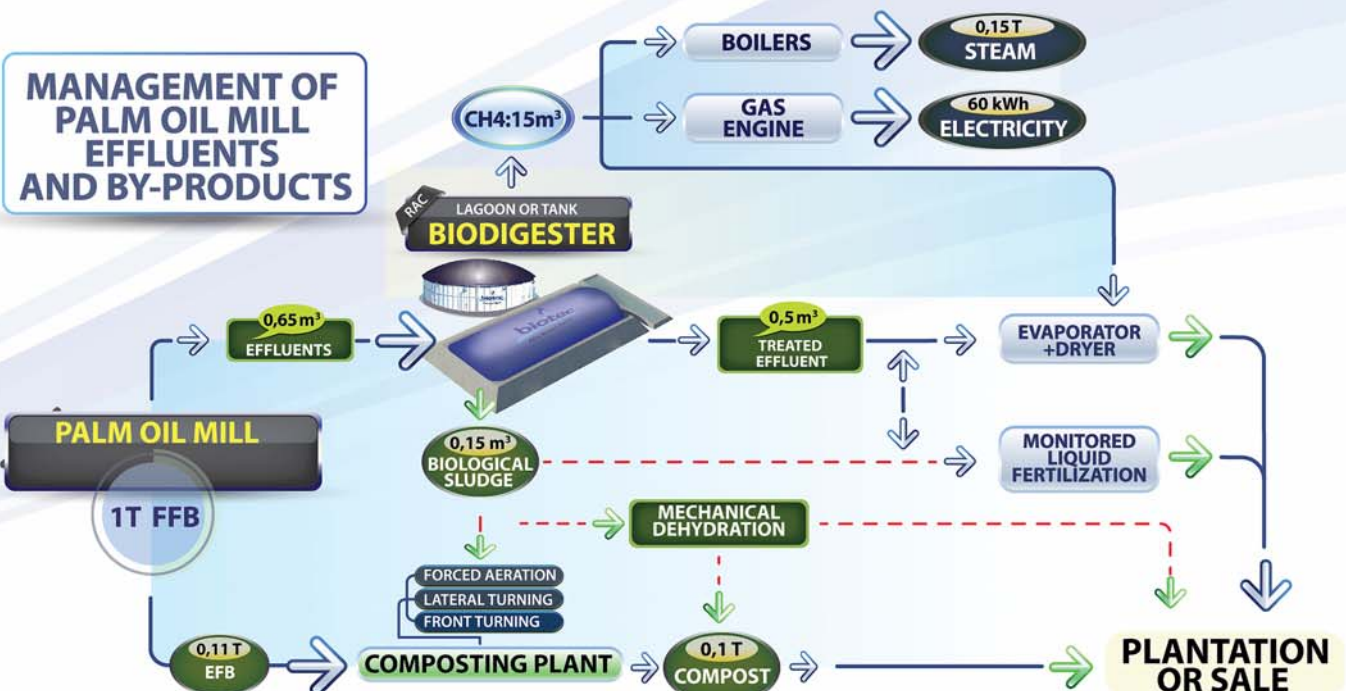
5.000 m³, 2012 BENUA PUHUN, Evans



TUING MILL, Evans 20.000 m³, 2016



20.000 m³, 2014 KAPILIT MILL, Sabah Softwoods



BIOGAS in tropical agro-industries

OUR TECHNOLOGIES

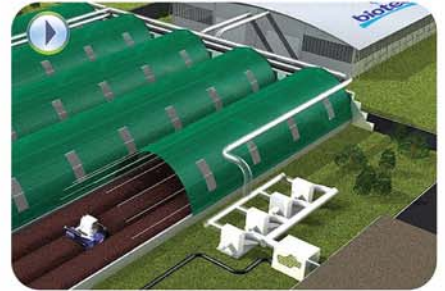
LAGOON BIODIGESTER



TANK BIODIGESTER



COMPOST PLANT



EFFLUENT EVAPORATOR+DRYER



ORGANIC FERTILIZATION



BIOGAS FOR STEAM/ELECTRICITY



OUR SERVICES

CONSULTANCY

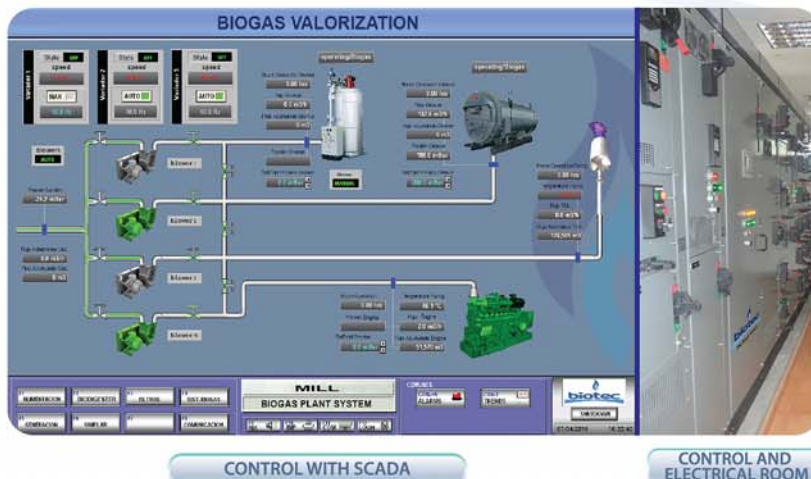
- Evaluation of the best byproducts management options for each mill (Feasibility Study = Conceptual Engineering)
- Current treatment solutions: evaluation and improvement (Rescue)
- **Big Data:** Set up of KPI for byproducts management – KPI follow-up – Management tools

EXECUTION (EPC-Engineering, Procurement, Construction/Commissioning)

- On a turnkey basis
- On a partial turnkey basis
- Engineering + Project Management

OPERATION AND MAINTENANCE

- Chief of Plant x 2 years
- Full operation team x 2 years
- Remote monitoring (scada + data sheets)
- Plant audit, operation improvement



CONTROL WITH SCADA

CONTROL AND ELECTRICAL ROOM

PROJECT CYCLE





since 1984

33 YEARS OF EXPERTISE

EFFLUENTS AND BY-PRODUCTS
TREATMENT / VALORIZATION

RENEWABLE ENERGY GENERATION
ORGANIC FERTILIZER PRODUCTION
ZERO DISCHARGE

contact us MAIN OFFICES



SOUTH EAST ASIA OFFICE
Setia Walk, C-10-2 Block C,
47610 Puchong, Selangor
Malaysia
Tel: (60) 3 5879 1410
malaysia@bio-tec.net

BELGIUM HEAD OFFICE
Rue Louis de Geer, 6
B-1348, Louvain-La-Neuve
Belgique
Tel: (32) 10 392 202
belgique@bio-tec.net

LATIN AMERICA OFFICE
Finca Yambo, km 3, La Buitrera,
Cali, Colombia
Tel: (57) 2 325 98 29
Cel: (57) 316 445 0878
colombia@bio-tec.net

BELGIUM | INDONESIA | MALAYSIA | COLOMBIA | HONDURAS