

# Slaughterhouses and butcheries



**Sistema.bio®** is a waste treatment system for small and medium scale slaughterhouses, especially for blood, manure, and fat treatment. The byproduct of this process is renewable energy -biogas- and biofertilizer. The biogas can be used for water heating, meat cooking, or for running small engines.

## Benefits

The system requires little maintenance and has very low operating costs. It does not need any complex system of pumps, filtration and aeration. In addition, Sistema.bio® is compact and modular, and adapts easily to a wide range of sizes and slaughterhouses configurations.

The biogas can displace a large portion of the high expenses in energy and fuels (LP gas, electricity and gasoline). The organic fertilizer displaces chemical ones, improves the soil quality and increases the crops' yield. By providing wastewater treatment, small slaughterhouses do not risk fines for discharging waste and contaminating water. These economic benefits, combined with an affordable price of the system lead to a return on investment for the farmer of one to two years. With a lifespan of 20 years, Sistema.bio® is an excellent investment option for small and medium size slaughterhouses.





## Slaughterhouse Morelos Sistema 120

- 300-400 slaughters per week
- Treatment capacity: 120 m<sup>3</sup>
- Price of the biodigester: \$170,000.00 MXN
- Biogas use in productive operations of the slaughterhouse and for employees showers
- Compliance of sanitation and environmental laws through a good waste management system
- Additional revenue through the sale of organic fertilizer
- Approximate savings of MXN 500 per week by displacing fossil fuels

“ We are perceiving a benefit because we are saving the money we used to buy LP gas with. We are also capturing methane gas and giving it a productive utility, using it in the boiler to heat water for the internal processes of the slaughterhouses and the facilities. Now the employees can shower with hot water. Every week we save approximately MXN 500 (US\$30). ”

Mr. Juan, Slaughterhouse in Morelos, Mexico

### Dairy cows

Model	Manure (L/day)	Number of cows (fully confined)	Biogas production			Biofertilizer production	
			Daily biogas production (m <sup>3</sup> /d)*	Daily average cooking time on one burner (h/day)**	Equivalent in LPG (kg/month)	(L/day)	(ha/year)
Sistema 6	45	2	1.7	3.3	21	135	4.9
Sistema 8	65	3	2.4	4.8	31	195	7.1
Sistema 12	90	5	3.3	6.7	43	270	9.9
Sistema 16	130	7	4.8	9.6	62	390	14.2
Sistema 20	180	9	6.7	13.3	86	540	19.7
Sistema 30	260	13	9.6	19.2	124	780	28.5
Sistema 40	350	18	12.9	25.9	166	1050	38.3
Sistema 80	700	35	25.9	51.8	333	2100	76.7
Sistema 120	1050	53	38.8	77.7	499	3150	115.0
Sistema 160	1400	70	51.8	103.5	665	4200	153.3
Sistema 200	1750	88	64.7	129.4	831	5250	191.6

Warm climate (>23° C)