

Rio de Janeiro Wastewater Treatment

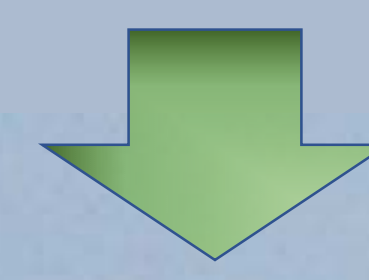
Colin Gordon (ME), Connor Craigie (RBE), Samuel Winslow (ME), Samuel Waring (AE)
 Advisors: Professor Elisabeth Stoddard (SSPS) and Professor Derren Rosbach (CEE)

Goal:

Improve the overall quality of life in the Favelas by applying an efficient wastewater management system

Problem:

- The favelas of Rio de Janeiro are plagued with pollution and disease due to a complete lack of a public sewage system



- Infant mortality rate = 4% in served areas as opposed to 23.9% in favelas



- Favelas produce 557,000 kg of waste everyday
- 1.4 million people live in the favelas in informal housing

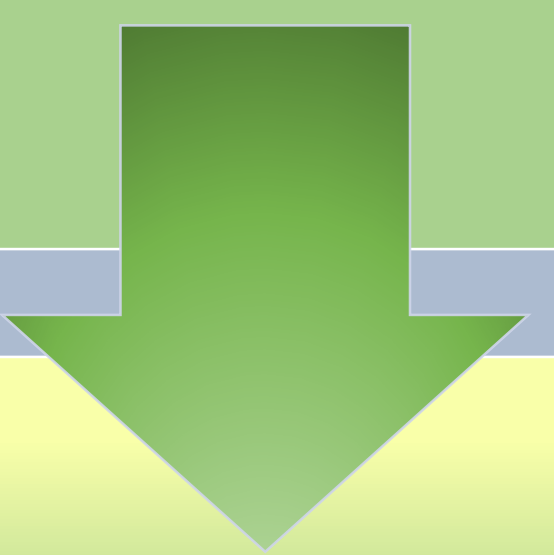
Chosen Solution:

Biodigesters

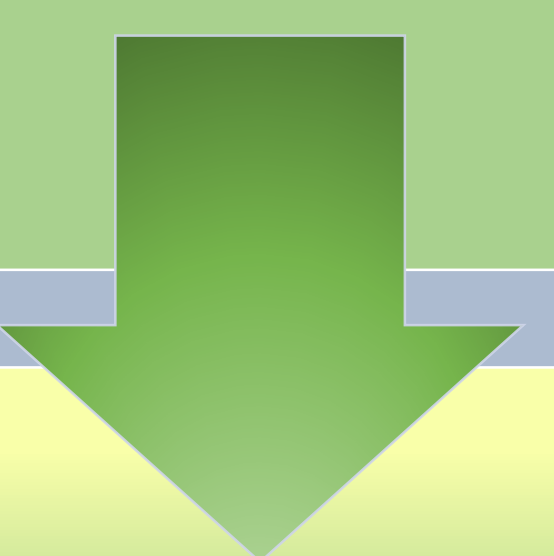


Implementation:

Education program for use (brief, easy to learn)

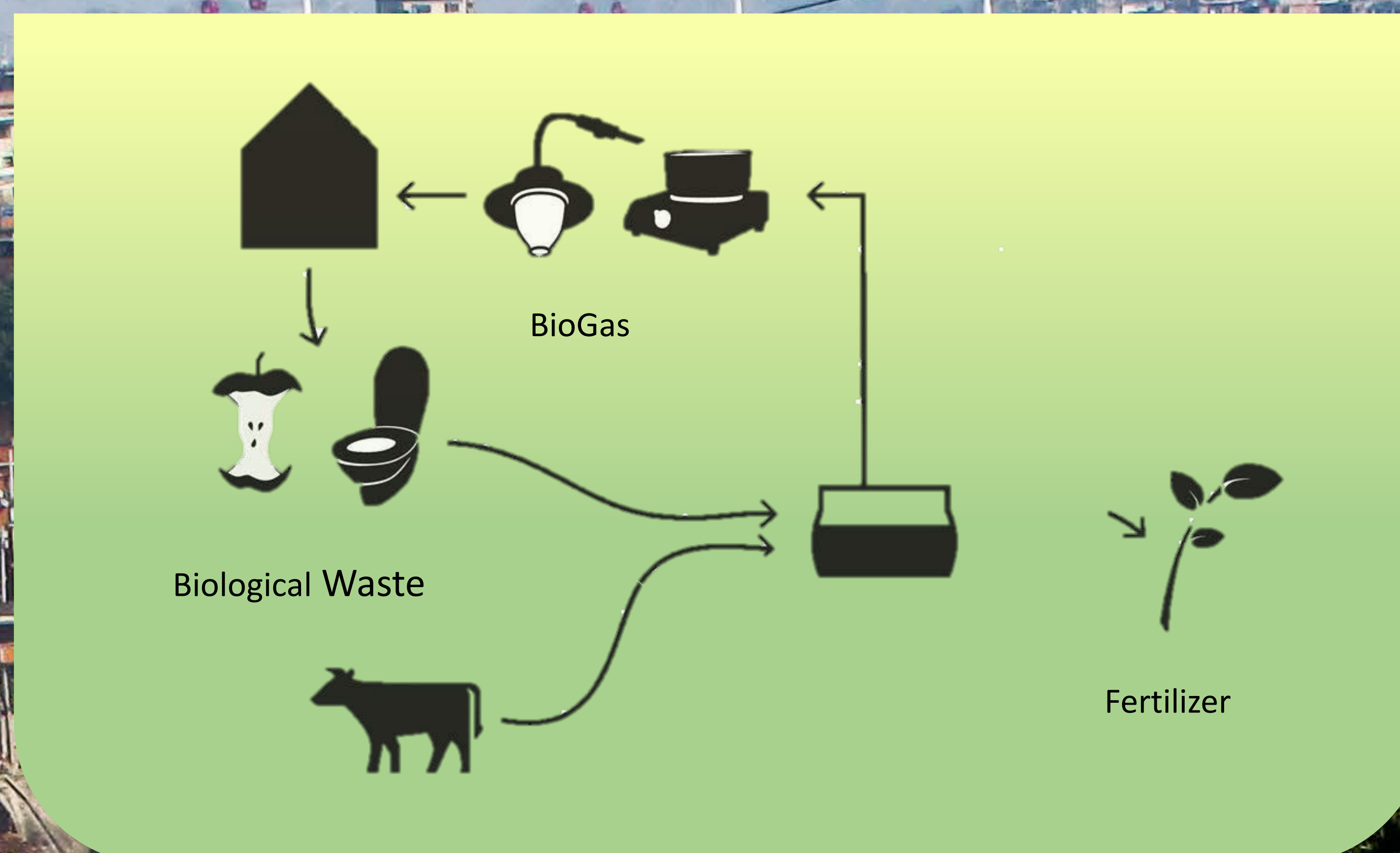
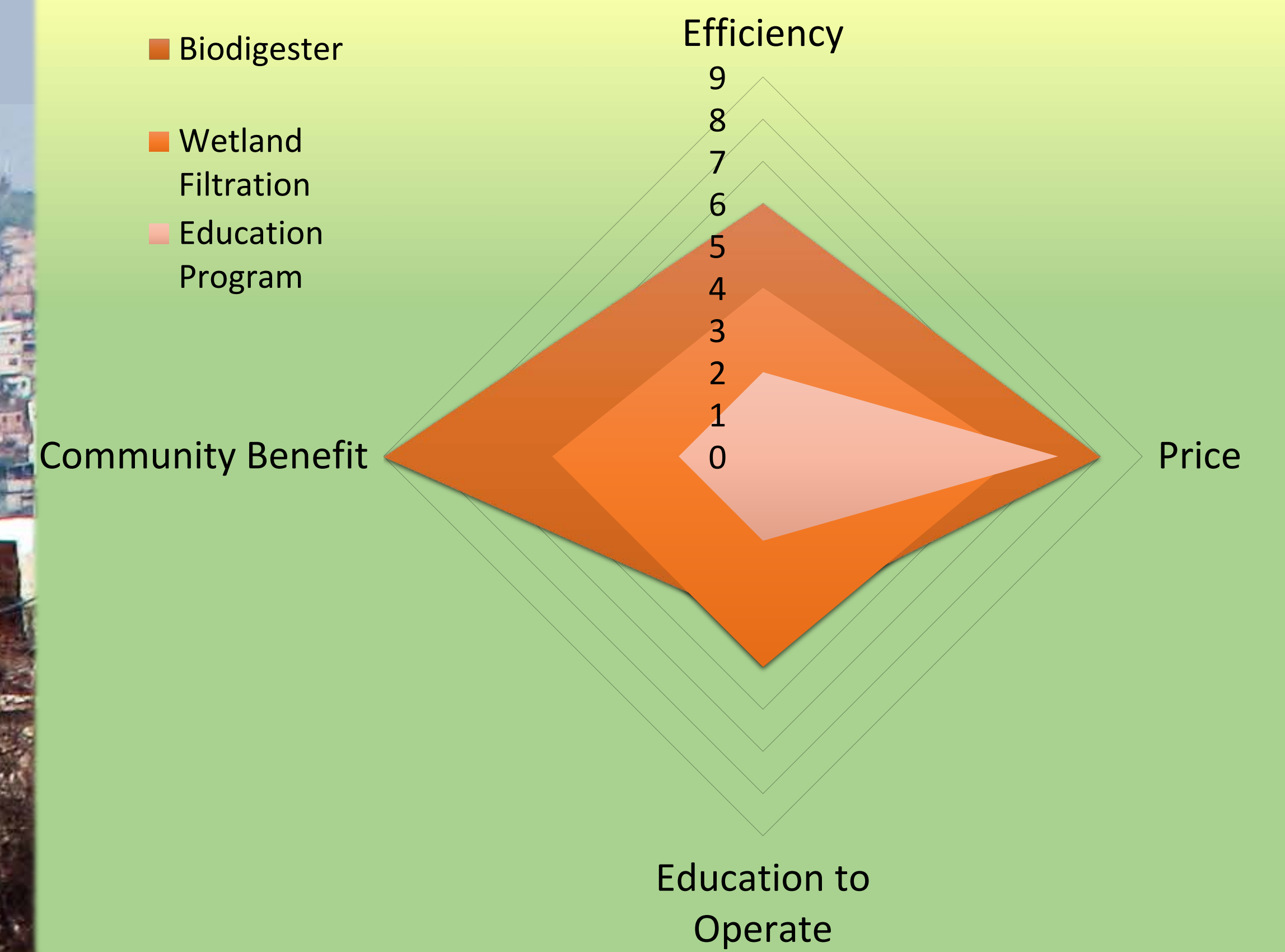


Monetary assistance requested from community organizations



Homeowners make a small investment (roughly \$200 as a group/community)

Decision Matrix



References:

- <http://www.simgas.com/advantages-of-biogas/how-does-biogas-work/Item46>
- <http://www.rionwatch.org/wp-content/uploads/2015/10/Biodigester-construction-progress-September.jpg>
- Riley, L. W., Ko, A. L., Unger, A., & Reis, M. G. (2007). Slum health: Diseases of neglected populations. *BMC International Health and Human Rights*, 7(1). doi:10.1186/1472-698x-7-2
- Khazan, O. (2016, March 31). What Happens When There's Sewage in the Water? Retrieved October 04, 2017, from <https://www.theatlantic.com/health/archive/2016/03/what-happens-when-theres-sewage-in-the-water/476013/>
- Snyder, R. E., Jaimes, G., Riley, L. W., Faerstein, E., & Corburn, J. (2013). A Comparison of Social and Spatial Determinants of Health Between Formal and Informal Settlements in a Large Metropolitan Setting in Brazil. *Journal of Urban Health*, 91(3), 432-445. doi:10.1007/s11524-013-9848-1
- <http://abcnews.go.com/International/photos/life-favelas-rio-de-janeiro-23998728>