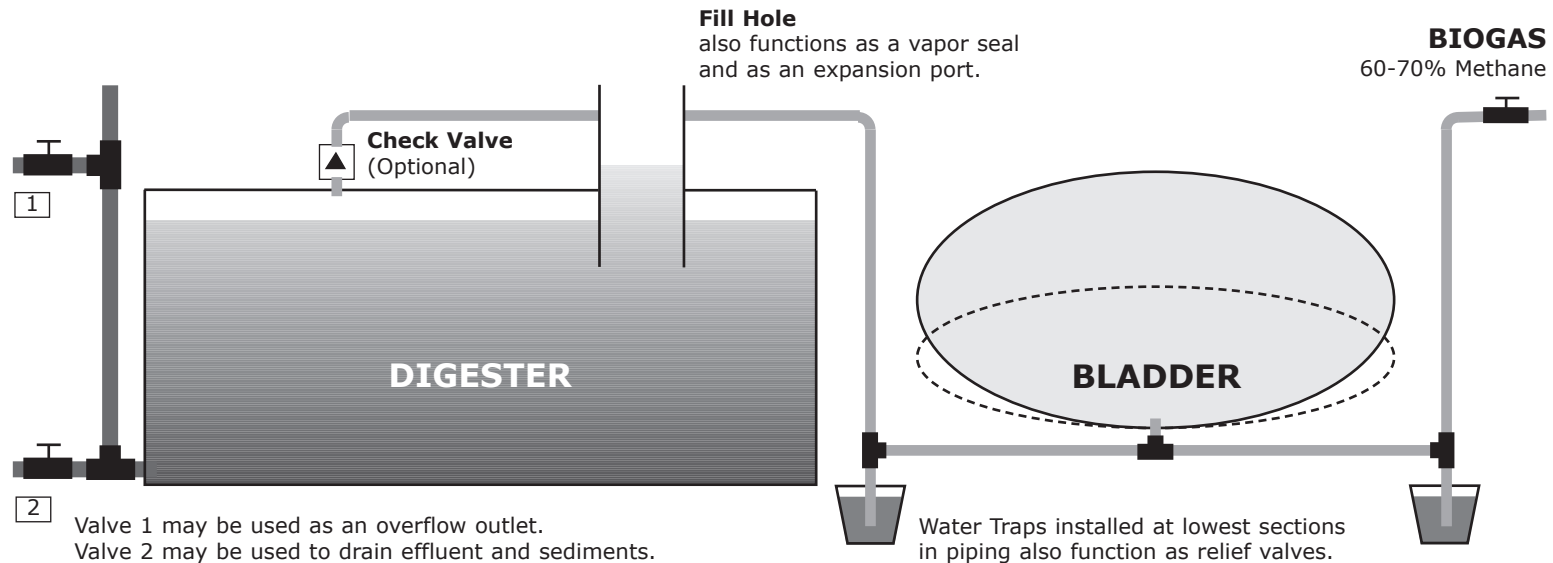


## Design Overview: Philippine BioDigester

by: Gerardo P. Baron, December 2004, (Tarlac City, Philippines)



### Design Highlights:

1. **Flexible:** May be used alternately for continuous flow (valve 1 open) or plug flow digestion (valve 2 open as needed.)
2. **Small, Compact & Inexpensive:** Separate digester allows full use of its contents for digestion; results in high gas yield versus digester volume; and, costs less.
3. **Clean & Sanitary:** Exposed digester liquids are kept at minimum compared to digesters with telescoping compartments.
4. **Versatile:** By raising the top section of the bladder, a suction (vacuum) effect may be created to extract gas. Conversely, by pressing down or applying weight on the top of the bladder, gas pressure is increased or adjusted.
5. **Simple & Functional:** Containers like 55-gallon metal or plastic drums can be easily made into digesters with just minor modifications. Bladder (under test) is made of inexpensive tarpaulin which is tougher, more durable and safer than PE used for TPED or PBD. It is sealed and shaped like an inflatable pillow. Moisture Traps are maintenance free (i.e. overflow when full.) A check valve using a ping-pong ball is being designed.

The pillow shaped (oval cross-section) tarpaulin has also been used effectively as a 2 m<sup>3</sup> biodigester tank. Same concept was also used to make two 10 m<sup>3</sup> digesters and one 10 m<sup>3</sup> bladder using 1.5 mm HDPE material.

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