21. **Waste to energy**

There is energy available in the methane produced by rotting human sewage. There is also energy available in food waste and scraps of paper, plastic and wood that people dispose of daily. This lever considers the effort and results from collecting and using these waste streams.

The last decade
The World Bank has recently funded a series of huge projects to capture and process sewage in Dhaka. The press cake resulting from its function needs to be disposed of somehow. At the same time the city is moving away from informal rubbish tips that require a large amount of land areas.

Assumptions of model
The model assumes that as well as Dhaka, sewage treatment plants will be built in other urban centers. The volume of municipal waste will continue to rise with the % share moving towards packaging and away from food residues. Finally, the model only considers municipal waste from urban areas as that represents the densest collection opportunity.

Levels

Level 1
4.23MT of sewage used for biofuel feedstock. This is equivalent to the entire urban population of Bangladesh. No usable municiple waste is collected.

Level 2
6.17MT of sewage and 9.2MT of Municipal waste used for biofuel feedstock. This sewage sludge is equivalent to the entire urban population and half of the rural population. By 2050, 33% of the usable waste in urban areas is collected as biofuel.

Level 3
7.14MT of sewage and 18.39MT of Municipal waste used for biofuel feedstock. This sewage sludge is equivalent to the entire urban population and three quarters of the rural population. By 2050, 66% of the usable waste in urban areas is collected as biofuel.

Level 4
8.11MT of sewage and 27.87MT of Municipal waste used for biofuel feedstock. In 2050, this represents all of the sewage sludge and all of the usable urban waste available.

Interaction with other levers
Both the sewage and waste streams are strongly affected by the population growth. The raw biomass output is converted into the end use set by the 'End Use Lever'.
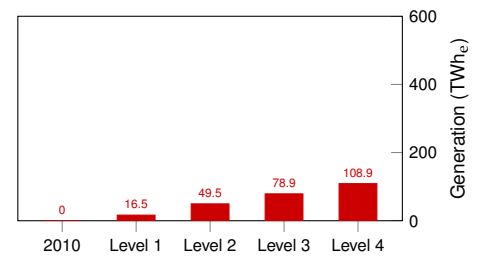

Figure 21.1: Projected in 2050, Raw biomass energy for a medium population
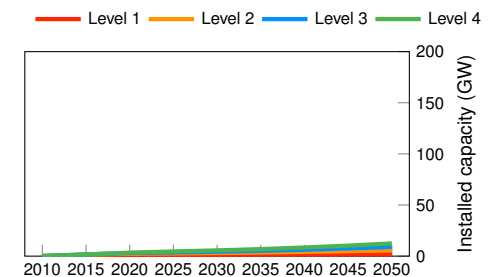

Figure 21.2: Raw Capacity before conversion, for a medium population growth

Figure 21.3: Sewage Incinerator Power Plant, London