19. Bioenergy from agricultural land

Agricultural land can be converted to provide fuel crops instead of food. This lever allows the user to set how much of Bangladesh's agricultural land is converted to fuel crops by 2050.

The last decade

At present, Bangladesh does not farm fuel crops on a wide scale. It has historically produced many thousands of tonnes of sugar cane (and associated residue) but this is currently focused on the food and drink market.

Assumptions of model

The model considers a likely fuel crop - sugar cane. It has been grown on a huge scale in Bangladesh previously, has a lower water footprint then rice and has a real world example, Brazil, to suggest policy results. The sugar content is always converted into a liquid fuel, but the solid residue can be converted to any form set by the End Use lever.

Levels

Level 1

No area is allocated for growing biofuel crops.

Level 2

33% of the available agricultural land is allocated to growing biofuel crops. This is a huge commitment, but possible with careful management.

Level 3

66% of the available agricultural land is allocated to growing biofuel crops. By necessity, Bangladesh will be forced to import food at this point.

Level 4

100% of the available agricultural land is allocated to growing biofuel crops. This is not exactly realistic, but provides an upper bound for the potential of bioenergy in Bangladesh.

Interaction with other levers

By reducing the land available for food, this lever will strongly affect the food security output that is otherwise controlled by the 'dietary nutrition' and 'protein source' levers. The end use of the sugar cane residue is controlled by the 'End Use Lever'
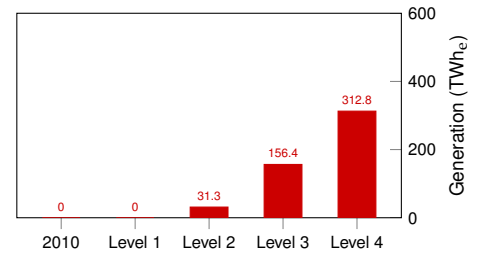

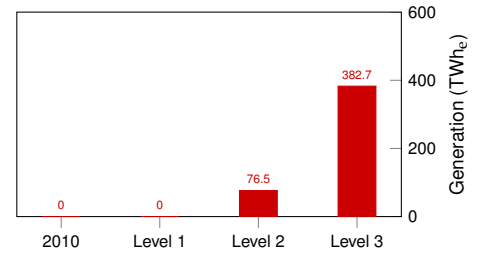Figure 19.1: Projected in 2050, TWh liquid fuel

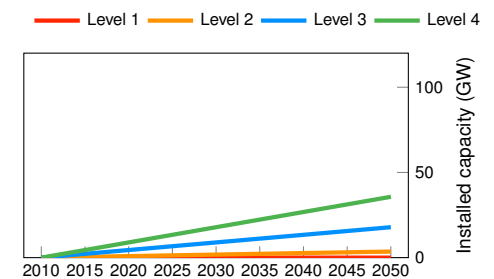Figure 19.2: Projected in 2050, TWh raw residue

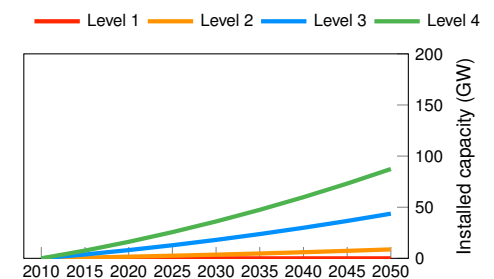Figure 19.3: Development of Liquid Fuel capacity
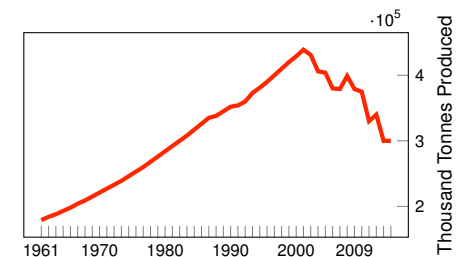

Figure 19.4: Development of Raw Residue capacity

Figure 19.5: Historic Bangladesh Sugar Cane Production