



production typically uses five, 20, or even 100 times the land, water, and energy that plant food production does. As much as 80 per cent of the global soybean crop and 40 to 50 per cent of the annual corn crop are fed to cattle, pigs, chickens, and other animals used in agriculture. Feeding of these grains in large quantities, facilitates rapid weight gain, which allows industries to slaughter animals in less time. According to recent research by the International Food Policy Research Institute, if this practice continues, the global meat industry "may find itself in a position of competing with poor people for cereals" and other grains used as feedstocks for farmed animals.

#### Water woes

According to the [International Water Management Institute](#) and the Stockholm International Water Institute, an average of six m<sup>3</sup>/kg (1 kg water is 1/1000 m<sup>3</sup>) of water is required to produce one kg of chicken, whereas, 0.4 to three m<sup>3</sup>/kg of water is needed to produce one kg of cereals. It is not only food resources that are depleted to produce meat, eggs, and dairy.

Water is, perhaps, the most important ingredient in agriculture — both for food crops for the animals and meat, egg, and dairy production. As the effects of climate change increase, however, water resources will be jeopardised. Raising animals for food requires substantially greater quantities of water than raising plants for human consumption. It can take five times as much water to supply 10 gm of protein from beef than from rice, and 20 times more water to supply 500 calories from beef than from rice.

Additionally, water is needed for hydrating farm animals and an increasing amount is required — particularly at industrial operations — to clean cages, stalls, pens and sheds, to dispose of waste, and for cooling animals during periods of high temperatures.

Processing animal products also requires large volumes of water and can result in significant amounts of wastewater. At cattle slaughter plants, globally, 44 to 60 per cent of total water used for processing is utilised during slaughter, evisceration, and de-boning.

#### Land-use mismanagement

The land used to grow crops to feed livestock is 10 times more than land used to grow crops for human consumption. Seventy per cent of former Amazon rainforest is now used for pastureland. The increase of carbon dioxide due to forest clearing, as well as the tremendous methane production of huge herds of cattle, contributes a great deal to the greenhouse effect and to global warming.

#### Wasted proteins

Protein conversion inefficiencies, compiled by Vaclav Smil, faculty of environment at the University of Manitoba, show that depending on animal products for protein is not the most efficient use of resources. According to his research, chickens fed a diet of corn and soybeans can only utilise 20 per cent of the protein present in those grains, 80 per cent is wasted; for pigs, 90 per cent of the protein they are fed in grain is lost.

Most of the energy farm animals consume from grains and other sources of food is used for their own metabolic processes or for forming bones, cartilage, and other non-edible parts (offal), as well as faeces.

#### Energy eaten up

According to author Keith Akers, the United States uses twice the energy per capita on food production than the less developed countries use per capita for all purposes. Even if 100 per cent of all the land on the six inhabited continents were used for agriculture (including the Sahara desert and Greenland), and even if that land were as productive as the US agricultural land, there would still not be enough land to feed the world population if their diet continues to be meat-based. zz

The writer is an environmentalist and former head, Peta, India

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don't do that!" my daughter Shreiyah shouted at me, rummaging ...

