

## Fuel crisis, ethyl alcohol and public transport

Fossil fuels are non-renewable, and the present stock would last for only another 30–40 years. The oil-exporting countries regulate the amount of oil to be drilled and sold, and also the international prices. India spends more than 100 billion dollars of its foreign exchange reserves for importing crude oil, petroleum and other oil products. Realizing the difficulties in depending on other countries for oil and also to reduce the oil bill, Brazil has shifted to the usage of ethyl alcohol, blending different concentrations to fossil fuels. In India also, similar attempts are being made to produce ethyl alcohol (power alcohol). Most of the ethyl alcohol produced is by distillation of molasses in the sugar extraction process. By the sale of arrack through public outlets various State Governments in India, put together, earn more than 10 billion dollars. The consumption of fossil fuel in India is 100 billion litres. If all State Governments put a ban on arrack sales in India and use it for mixing with petroleum or diesel, after necessary processing, then almost 5% (i.e. 5 billion litres) of fossil fuel can be compensated. If we encourage more sugarcane production, a larger amount of sugar could be extracted,

leaving higher amount of molasses available for distillation to produce ethyl alcohol. In addition, various laboratories are working on the production of alcohol from various other sources, including cellulose from plant biomass. This needs to be hastened up. Once a decision is taken to use the arrack (after processing) for mixing with fossil fuel, alcohol consumers need an alternative, as some suggest, which could be in the form of toddy. Toddy sale should be allowed freely in India, so that the pressure on ethyl alcohol from molasses will come down.

When the number of vehicles increases, the fuel consumption will also increase. Nowadays, cars and other vehicles mostly carry only a single person. If thousand cars ply to carry 1000 people, the fuel consumption would be 10,000 l for a distance of 50 km, to and fro. Instead, in public transport buses, 40 people can travel in a bus and 25 buses can commute 1000 people to the same distance for just 500 to 700 l of fuel consumption. Then we could save on fuel consumption by 20-fold. Hence we should strive to increase, modernize and perfect our public transport system.

The advantages of resorting to an efficient public transport system and reducing individual vehicles would be: (i) Less pollution, as the amount of smoke coming out could be reduced and also global warming and climate changes could be reduced. (ii) Lower number of vehicles on the roads, and reduction in the occurrence of accidents. (iii) Traffic jams and congestions will come down saving precious time. (iv) The oil import bill will come down drastically and also the pressure on foreign exchange reserves will come down.

The disadvantages of the public transport system are: (i) Crowd and congestion inside buses, (ii) No air-conditioning within the buses, (iii) Poor frequency in the number of buses plying in any particular route, (iv) Lack of punctuality.

Another factor that would minimize fuel consumption is the proper laying of roads, which is a difficult task in our country.

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## Sydney Altman's didactic remarks

In the recently organized biotech show, Bangalore 2008, during 24–26 April, the remarks of Sydney Altman, the Nobel Prize winner in chemistry from Yale University, were really instructive and didactic. Altman mentioned that in the late 1990s most of the powerful ideas in basic research that have pushed companies have come from non-profit agencies like government institutes (universities, etc.) or charitable private companies. About 80–90% of new ideas come from non-profit companies. In other words, ideas do not come from companies. The same is true for physics, chemistry and

the biomedical field, with 70–90% ideas coming from non-profit agencies. He urged the companies to invest in academic institutions. One dollar investment by the companies in the government agencies has given 1.25 dollars back to the companies and 1.50 dollars to the society as a whole. But it takes 20 years to get the technology. Therefore, we need to be patient.

Can our non-profit agencies also claim as mentioned above? Only then, can academicians live with honour and dignity in the society. Our academicians, government and apex bodies should seriously

reflect on Altman's remarks with all their implications and ramifications and strive to achieve the same distinction in our universities and other non-profit organizations, as those of USA.

In the mean time, the government should work out the statistics, i.e. the returns on investment in science and technology, and make it known to the public.

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