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AUTOMOBILES AND OTHER TRANSPORTATION

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The discussion group on automobiles and other transportation divided its field into 6 different areas.

1. Increased mobility
2. Quality of life in transportation
3. Controlled ecological impact
4. Optimal energy use
5. Materials and conservation
6. Other sectors

1. Increased mobility

The number of cars in the world has been constantly increasing in the last decades. It is assumed that this increase will go on during the next decade. Due to lack of road building, old fashioned city planning and other reasons, the increased amount of cars has lead to problems with mobility. The group discussed different ways of increasing this mobility and came up with the following points:

- a) People prefer to drive their car rather than use public transport, even if they do not save time and money. Public transport must therefore be convenient, cheap and quick in order to compete. Buses of different sizes will meet these goals better than subways. Tram systems with rails and overhead wiring will be too energy and capital demanding, and are not flexible for changes in city planning.
- b) Traffic planning. (Two level streets, reserved bus lanes, traffic flow control by electronic devices).
- c) Computer information via radio to driver.
- d) Centres closed to traffic.
- e) Terminals for passengers and goods. Unit loads (containers) and small trucks for city centres.
- f) Increased car and van pooling.
- g) Railways for intercity transport.

2. Quality of life in transportation

Most people are in contact with transportation every day in commuting to their jobs, to shops and to their leisure activities. This mobility is affected by the time it takes to transport from door to door, safety and emission problems, freedom to move, traffic restrictions imposed in the cities. Important areas in this field are:

- a) Generally the same answer as for increased mobility.
- b) Added safety.
- c) Freedom to move.
- d) Less noise.
- e) Perhaps a city car as a second car?

There was not much belief in public car use (renting, leasing) or personal rapid transit.

3. Controlled ecological impact

It was generally agreed that strict regulations will be enforced in most of the European countries in order to minimize the ecological effect from vehicles. This will cover fuel emission, noise and car size and there will also be a need for recycling of materials used in car manufacture. The following points are regarded as the most interesting ones.

- a) Combustion control by electronics.
- b) Catalysts for controlled emission.
- c) Lead-free gasoline.
- d) New fuels (methanol, synthetic fuel).
- e) Electrical cars for short distances and city centre use.

4. Optimal energy use

It is quite clear that the energy issue will be important in nearly all sectors of industry, including automobiles and transportation. In many countries measures have already been taken to minimize the fuel consumption for vehicles and it is generally regarded that this trend will go on in the next decade and that the following points will be of importance.

- a) Diesel engine use will increase.
- b) Broad-cut fuels will be used.
- c) Hybrid car may come after 10 years.
- d) Cars will be smaller and lighter (enforced by legislation or by taxation).
- e) Speed limits will be used to minimize fuel consumption.
- f) There is a risk that political decisions will restrict car use if energy crises occur again.
- g) Fuel cells for vehicles will not be available in the next decade.

5. Materials and conservation

Vehicles for transportation, whether on land, on water or in the air, need, to some extent, materials that will be short during the next decades. In order to meet new regulations and new needs, new or substitute materials will have to be used and recycling of materials will also be of great importance.

The group came to the conclusion that the following five items are of special interest.

- a) Stronger steels will be required.
- b) Composites will start to be used (slowly).
- c) Use of plastics will increase.
- d) Ceramics will be used in engines, necessary for gas turbines and Stirling, good for diesels and Otto engines.
- e) Longer lifetime and smaller cars will mean less material and lower production turnover.

6. Other sectors

The transportation industry and its products are to a great extent interconnected with other industries, so changes in the situation for automobiles and transportation will obviously have an effect on those industries and vice versa. The following items are regarded as some of the most important ones.

- a) Steel industry. Less steel being used.
- b) Plastics. Increased use. Some structural parts will be used in cars.
- c) Electronics. Microprocessors, computers, robots will have a rapid increase.
- d) Textile. As now. Fire retardant materials.
- e) Civil engineering. Intercity road building decreases.
- f) Petroleum. Alternative fuels, preferably from non-fossil resources.