



BICYCLE RESEARCH REPORT NO. 123

December 2000

Francis Papon:

WORLD MOBILITY TRENDS: WHAT PLACE FOR THE BICYCLE?

65% of cycle traffic world-wide in Asia - dramatic drop in China owing to rapid motorisation - bicycle revival in developing countries

Key Facts

11% of traffic world-wide is on a bicycle, two thirds of which is in South-East Asia. The rapid increase in motorised traffic in China in recent years has since 1995 led to a dramatic decline in bicycle use as the roads were becoming more dangerous for cyclists and the bicycle was becoming less attractive for the status-conscious middle-class.

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In his survey of global mobility, Francis Papon of the French Research Institute INRETS shows the significance of bicycles in various parts of the world. Particularly important is the established data for forecasting future traffic demands. It can help to understand past developments and to recognize why the developing countries are dominated by car culture.

The established data which comes from quite different sources was obtained mainly from traffic censuses and household surveys. It comes from United Nations' reports, the World Bank, the European Conference of Ministers of Transport ECMT and from conference articles. The estimates in part are rather uncertain. There are bad data-bases especially for transport by animal, walking, cycling, moped-riding, motor-cycling and for rural areas in some parts of the world, developing countries and in countries that are undergoing a politically radical change of government.

The highest percentage of all traffic is cycle-traffic in the following Chinese cities (Zhipo 76%, Shaoxing 72%, Beijing 54% (fig. from 1993) and from Hanoi, Vietnam (46% fig. from 1995) only to be followed by the Dutch city of Delft (41% in 1994) (Table 2). All together 1.4 thousand million trips by bicycle were undertaken every day world-wide in 1990, in the course of which 5.7 thousand million kilometres were ridden (Table 1).

The significance of the bicycle is very high especially in countries where people ride short distances every day. Whilst Americans everywhere in 1990 cycled the farthest, on average 62 km per person per day, Chinese, Africans and Indians only rode 7-8 km per day. 65% of cycle traffic is to be found in



South-East Asia. Per head of population 3.0 km per person/day are mostly cycled in South-East Asia. Among the developed countries Japan with 1 km per person/day is well in front of Europe (0.5 km per person/day) and America (0.1 km per person/day) (Table 3).

The number of trips by bicycle on all commuter journeys including the transport by animal is estimated world-wide at 11%. 7% of all kilometres are cycled. Most commuter trips are done on foot (47%) and 23% by bus (Table 5 and 6)

Statistics on cycling in China (according to Mao BH, Xiao GP et Xu H, 1999, IATSS Research) document a rapid fall in cycling in the country where people everywhere mostly ride a bicycle. Bicycle production in 1998 amounted to 23 million as opposed to 45 million in 1995. 17 million bicycles were exported in 1998. Nine million bicycles were sold on the home market whilst in 1996 there were 19 million.

In China in 1998 there were about 500 million bicycles (1 per 2.6 inhabitants), but motorisation is growing rapidly. Excluding agricultural vehicles and bicycles there were already 12 million official cars and company cars in 1997 and 3.6 million private cars (in 1985 there were just 3.2 million and still no private cars). The bicycle played the most important role as a means of transport in 1995 immediately before motorisation began. There were 179 bicycles to every 100 households in the cities in 1997. (The maximum number was 194 in 1995). The number of bicycles on all inner city roads amounted to an average of 47% in 1993; 36% of all roads were used by pedestrians, 13% for public transport and 4% for others (solo motor-cycles, taxis, hand-carts and cars). A massive increase in solo motor-cycles and motor-cycle combinations [motor-cycle and side-car] has made the roads in China more dangerous and for the status-conscious middle-class the bicycle is no longer attractive.

As in South-East Asia now motorisation everywhere has led to a loss in the importance of the bicycle. Whilst the bicycle as a means of transport in a few developed countries, such as Japan and Northern Europe has reached a considerable level, in other countries it remains to be just a piece of sports equipment or a toy. Whilst a few are in a position to fly around the world and crowds of people from rich countries and the elite from the developing countries block the streets with their cars, women in Africa still have to go on foot to fetch water. If financial circumstances in the world were divided equally and each person were to ride on average 15 km per day then bicycles would solve the problem of mobility for the whole of mankind.

Report

World mobility trends: what place for the bicycle? Paper and poster presentation at the World Cycling Conference VELOMONDIAL, Amsterdam 2000



(unpublished)

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All Enclosures from Papon, loc.cit

1 - World travel daily values 1990

World travel daily values 1990

↕ travel time 1 hour	↕ speed 15 km/h
↕ trip time 25 min	↕ trip length 6.5 km
↕ 2.4 trips per pers.	↕ 15 km per pers.
	1.1 km/\$GDPppp
trips 12.6 billion	82 billion km
bike 1.4 billion	bike 5.7 billion km



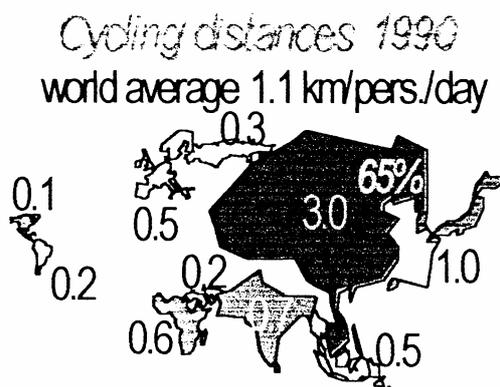
2 – Bicycle share in a few cities

Bicycle share in a few cities

↻ Zhipo, China, 1993	76%	↻ Bremen, Germany, 1990	22%
↻ Shaoxing, China, 1993	72%	↻ Davis city, USA, 1990	22%
↻ Shengyang, China, 1984	65%	↻ Morogoro, Tanzania, 1994	20%
↻ Beijing, China, 1993	54%	↻ Tokyo, Japan, 1990	15%
↻ Hanoi, Vietnam, 1995	46%	↻ Amsterdam, The N., 1992	15%
↻ Delft, The Neth. 1994	41%	↻ Casablanca, Moroc. 1976	12%
↻ Kanpur, India, 1987	30%	↻ Strasbourg, France, 1988	8%
↻ Okayama, Japan, 1982	30%	↻ Perth, Australia, 1991	6%
↻ Jaipur, India, 1986	27%	↻ Paris, France, 1991	0,4%
↻ Shanghai, China, 1993	26%	↻ Algiers, Algeria, 1990	0,3%
↻ Surabaya, Indonesia, 1990	25%	↻ New York, USA, 1990	0,3%

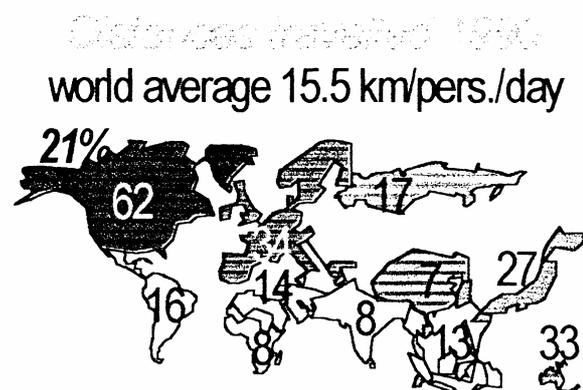
3 - Cycling distances

1990



4 – Distances traveled on all forms of transport

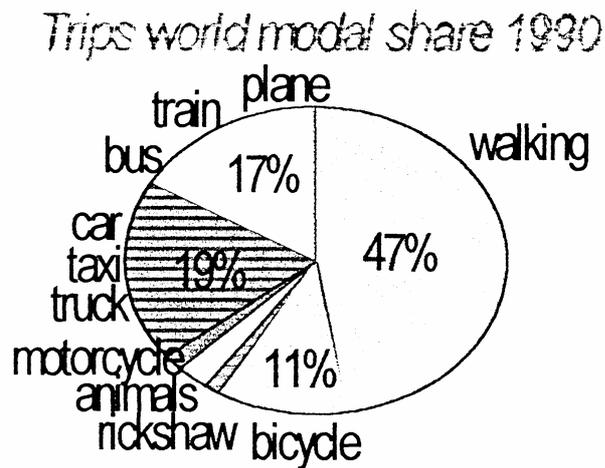
1990





5 – Trips world modal share 1990

(depending on roads)



6 – Distances modal share 1990

