WHITE PAPER
ON TRAFFIC SAFETY IN JAPAN 2000
Abridged Edition

TRAFFIC SAFETY POLICY OFFICE
MANAGEMENT AND COORDINATION AGENCY

Editorial Supervision: Director General for Policy Planning and Coordination, Cabinet Office

IATSS
International Association of Traffic and Safety Sciences

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This White Paper on Traffic Safety in Japan was compiled under the supervision of Director General for Policy Planning and Coordination, Cabinet Office, Japan.

The International Association of Traffic and Safety Sciences hopes this paper, in conjunction with Statistics of Road Accident Japan, will greatly enhance readers' knowledge of traffic accident remedial measures.

OUTLINE OF WHITE PAPER ON TRAFFIC SAFETY
TRAFFIC ACCIDENTS AND CURRENT TRAFFIC SAFETY MEASURES

Management and Coordination Agency

As required by Article 13 of the Traffic Safety Policies Law (Legislation 110 enacted in 1970), the government annually presents its "White Paper on Traffic Safety in Japan" to the Diet.

The information contained in this year's White Paper (FY2000 White Paper on Traffic Safety in Japan), the 30th since the first issue in 1971, is outlined below.

The main volume, "Traffic Accidents and Traffic Safety Measures in FY1999" reports the latest national statistics on traffic accidents, organized according to the categories of land transport (road and rail), maritime transport and air transport, together with an outline of traffic safety measures implemented in FY1999. The volume is supplemented with discussions at length on topics of particular public interest. They are "Traffic safety measures considered from the standpoints of high-risk groups and accident victims, and future directions in this area," "Measures to address accidents in tunnels caused by falling concrete and railway disruptions in the metropolitan district," "Improvements to rescue systems prompted by the Fishing Boat Shinsei-maru accident," and "Promotion of improved aviation safety."

A separate volume of the White Paper, "Traffic Safety Measure Plans for Implementation in FY2000," provides details of the traffic safety measures planned for implementation during the current fiscal year (FY2000), according to the three categories of land transport (road and rail), maritime transport and air transport.

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Part 1. Road Transport

Chapter 1. Trends in Road Traffic Accidents

Long-term trends in road traffic accidents

The annual number of fatalities resulting from road traffic accidents in Japan peaked in 1970 at 16,765. To address concerns about the alarming death toll on the nation's roads, the Traffic Safety Policies Law was enacted in that same year. Based on the new law, in FY1971 the government began drawing up five-year plans, known as Fundamental Traffic Safety Programs, to systematically promote traffic safety improvements.

From 1971, annual road traffic fatalities fell steadily, to 8,466 in 1979. The death toll began to rise in the following year, however, registering over 9,000 yearly in the 1982-1987 period, followed by eight consecutive years of over 10,000 deaths. It started to decline in 1995, dipping below 10,000 in 1996.

Road traffic accidents in 1999

1. Overview

In 1999 a total of 850,363 traffic accidents occurred in Japan, leaving 9,006 people dead and 1,050,397 injured.

Although the death toll was kept below 10,000 for the fourth consecutive year, 1999 was the seventh year in a row to mark a new high in the number of road accidents. In addition, the total number of people injured in the year passed the 1 million mark for the first time ever renewing the all-time high record of the previous year. (See **Fig. 1**)

2. Traffic accident fatalities and injuries by age group

For the seventh straight year the elderly (people over 65) suffered the largest number of deaths (3,143 deaths, 34.9%of the total), followed by young people ages 16 to 24 (1,578 deaths, 17.5%). Together, these two age groups accounted for 52.4% of all traffic fatalities. (See **Fig. 2**)

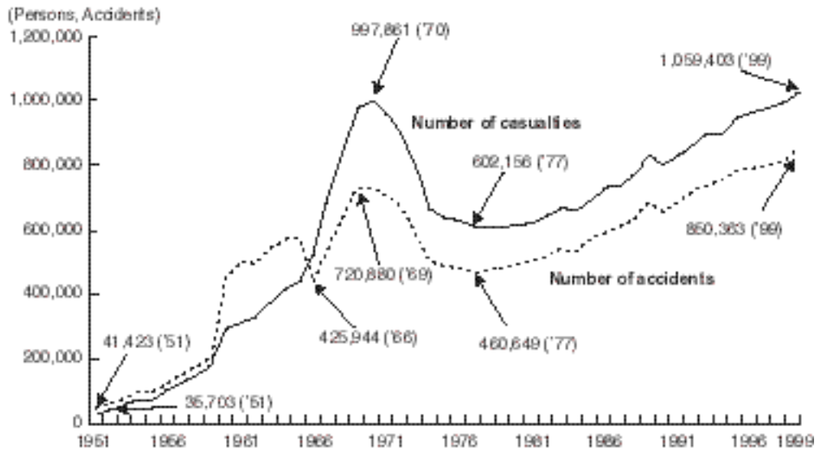
The 16-24 age group accounted for 23.4% (246,292) of all road injuries, more than any other age group. The number of people injured in traffic accidents was higher than the previous year for all age groups.

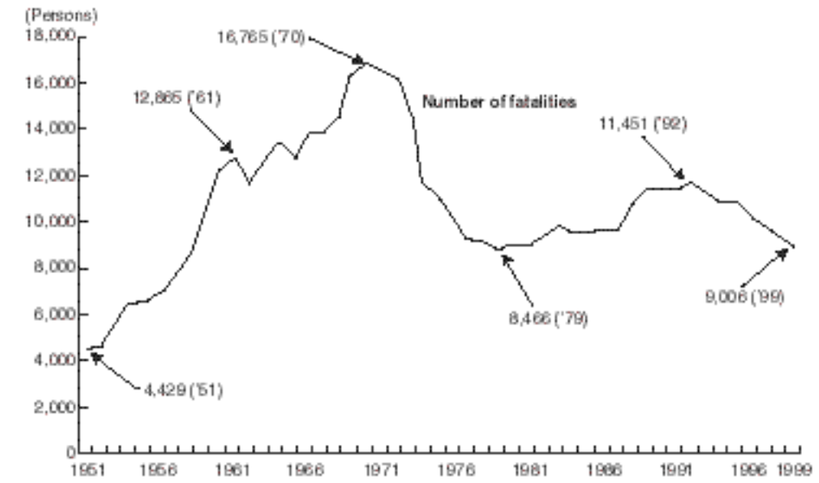
3. Traffic accident fatalities and injuries by road user type

By road user type, motor vehicle occupants (drivers and passengers) suffered the largest number of road fatalities at 3,872, accounting for 43.0% of the total. (See **Fig. 3**)

Motor vehicle occupants also topped the list of injuries by road user type, with 643,590 of them injured, accounting for 61.3% of the total. The number of injuries was up from the previous year for all road user types.

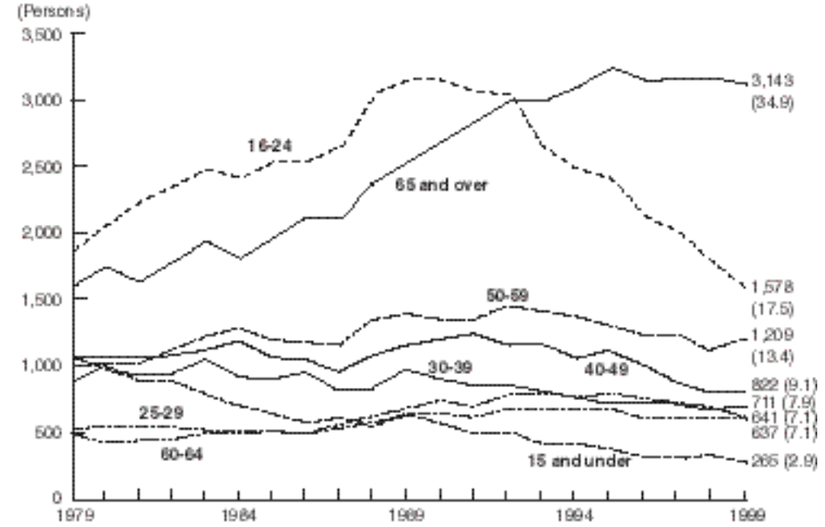
Figure 1 Changes in Traffic Accidents, Casualties and Fatalities





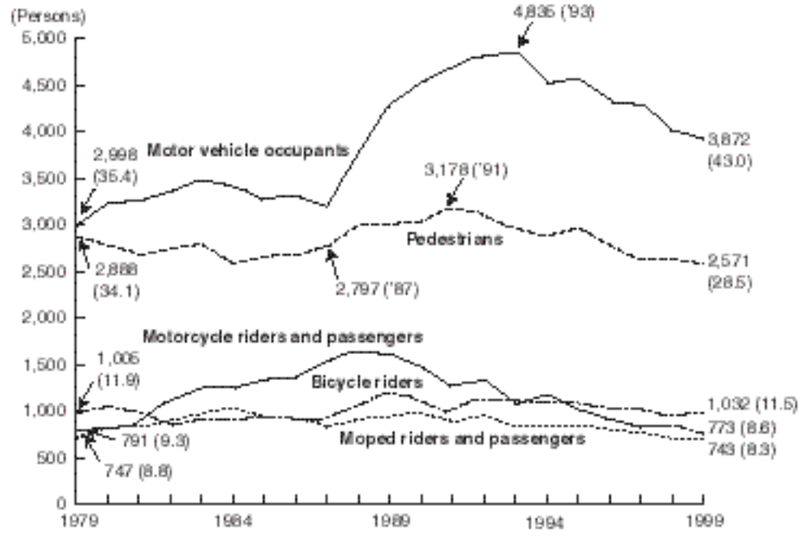
Notes: 1. Source: National Police Agency
2. Figures after 1966 do not include property-damage-only accidents.
3. Figures for Okinawa Prefecture were not included before 1971.

Figure 2 Changes in Traffic Accident Fatalities by Age Group



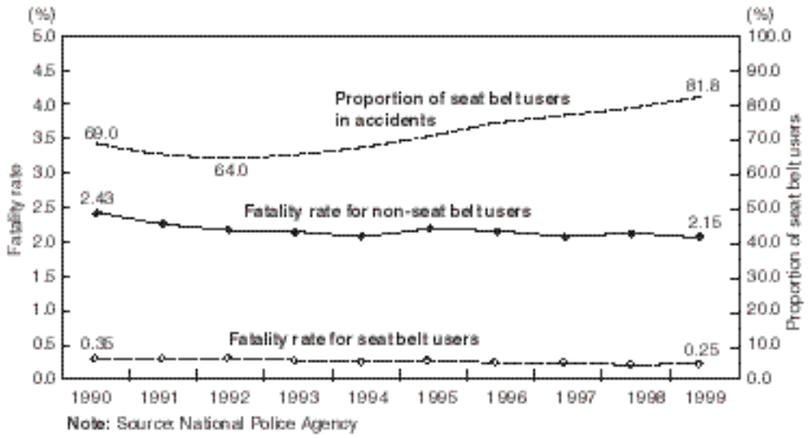
Notes: 1. Source: National Police Agency
2. Figures in parentheses show percentage (%) of fatalities by age group.

Figure 3 Changes in Traffic Accident Fatalities by Road User Type



Notes: 1. Source: National Police Agency
2. Figures in parentheses show percentage (%) of fatalities by road user type.

Figure 4 Changes in the Fatality Rates among Motor Vehicle Occupants Involved in Traffic Accidents by Seat Belt Use; and Changes in the Proportion of Motor Vehicle Occupants Using Seat Belts When Killed or Injured in Accidents



Note: Source: National Police Agency

4. Traffic accident fatalities by seat belt use

The proportion of motor vehicle occupants killed or injured in road traffic accidents with their seat belts fastened (ratio of seat belt-wearing casualties to total traffic accident casualties for motor vehicle occupants) has been increasing steadily since 1993, reaching 81.8% in 1999.

The fatality rate of seat belt users (ratio of their fatalities to total traffic accident casualties) was approximately one-eighth of that of people not wearing belts. (See **Fig. 4**)

Chapter 2. Traffic Safety Measures Considered from the Standpoints of High-Risk Groups and Accident Victims, and Future Directions in this Area

As of the end of March 1999, total vehicle ownership in Japan stood at 73,688,000 (corresponding to 1.06 private passenger vehicles per household). The number of driving license holders was 73,793,000 as of the end of December 1999 (corresponding to approximately 69% of all people 16 and over). As these figures show, the entire society, not only motorists, are enjoying the convenience of motor vehicles.

Since the 1980s, the number of traffic accidents and the number of traffic accident casualties in Japan have been increasing almost in line with increases in motor vehicle ownership and the number of driving license holders. If the numbers continue to grow at this rate, approximately one person from every 47 households will be injured in a traffic accident each year. In other words, everyone in Japan is now at significant risk of being involved in a traffic accident.

The widespread use of motor vehicles in our modern society means that every person is at risk of becoming party to a traffic accident. For this reason, the “traffic safety measures considered from the standpoints of high-risk groups and accident victims” can essentially be applied to everyone. It follows then that all road users must approach the risk of traffic accidents by trying to avoid causing any harm to others while protecting themselves from possible harm. This principle aside, however, our society must work as a whole to minimize the suffering and damage caused by traffic accidents-the inevitable social cost of the benefits our society as a whole enjoy from motorized transportation. We also need to take steps to relieve the burden of this suffering from individuals as much as possible, by sharing it as equitably as possible over the whole of society.

Features of traffic accidents focusing on high-risk groups

1. Analysis according to victim types

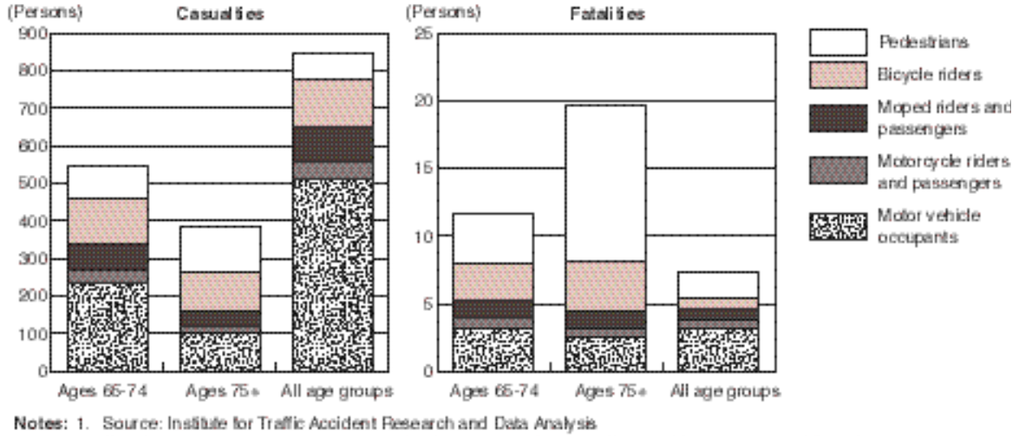
(1) Features of traffic accidents involving the elderly

Elderly people (65 and over) are accounting for a growing proportion of traffic accident fatalities in Japan. Furthermore, the number of fatalities per 100,000 population is higher for the elderly than any other age group. The fatality rate for those 75 years and older is 2.7 times the fatality rate for all age groups. (See F**ig. 5**)

(2) Features of traffic accidents involving infants and children

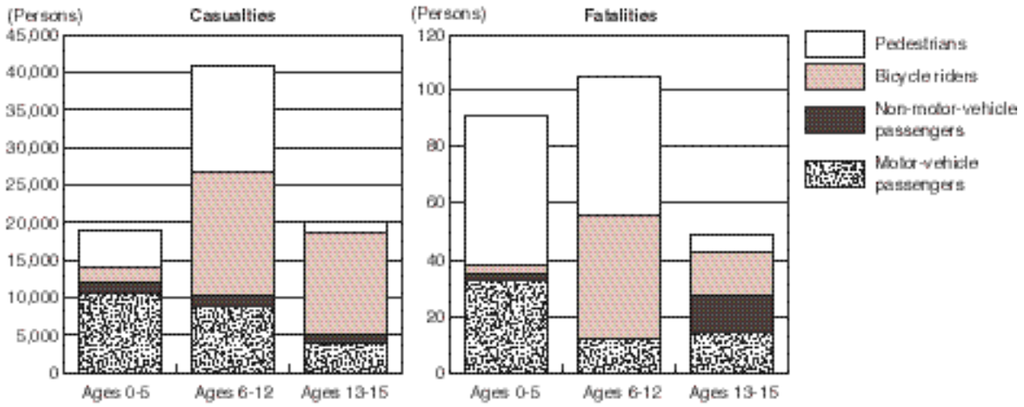
Fatality statistics show that infants and children (age groups 0-5 and 6-12) are more likely to die on the roads as pedestrians than in any other way (58.1% and 49.1% respectively). Furthermore, a large proportion (53.7%) of children in the 0-5 age group who are killed or injured in traffic accidents (casualties) are motor vehicle occupants. (Note that 80.8% of children in the 0-5 age group who were killed or injured as motor vehicle-occupants were not in child safety seats.) (See **Fig. 6**)

Figure 5 Casualties and Fatalities for the 65-and-over Age Group per 100,000 Persons by Road User Type (1999)



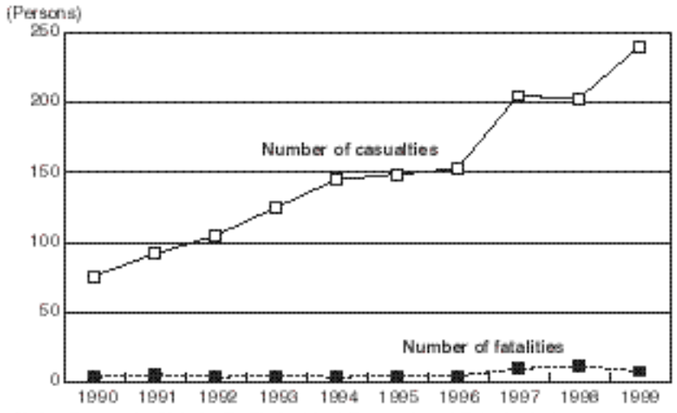
Notes: 1. Source: Institute for Traffic Accident Research and Data Analysis
2. Population figures are estimates as of October 1, 1999 (Statistics Bureau, Management and Coordination Agency)

Figure 6 Casualties and Fatalities of Infants and Children by Road User Type (1999)



Note: Source: Institute for Traffic Accident Research and Data Analysis

Figure 7 Changes in Casualties and Fatalities of Wheelchair Users



Note: Source: Institute for Traffic Accident Research and Data Analysis

(3) Features of traffic accidents involving the disabled

The number of casualties among wheelchair users (categorised as pedestrians) classified as disabled in traffic statistics has been generally increasing with some slight fluctuations. They totaled 233 in 1999. (See **Fig. 7**)

2. Analysis according to road user types

(1) Features of pedestrian accidents

73% of pedestrian fatalities (2,571) and 63% of pedestrian casualties (83,379) occurred in accidents where the victim was crossing a road, while 19% of pedestrian fatalities and 25% of pedestrian casualties occurred in accidents where the victim was crossing at a pedestrian crossing. (Note that 31% of fatalities and 10% of casualties in accidents at pedestrian crossings occurred when the pedestrian was walking against the lights.)

(2) Features of accidents involving bicycle riders

The number of bicycle rider casualties (157,110) has been increasing in all age groups. However, the number of fatalities has increased only among elderly people, though only slightly. Over 90% of bicycle accidents involved a motor vehicle. In the five years between 1995 and 1999 a total of 3,240 bicycle accidents involved pedestrians. Of these accidents, approximately 20% resulted in the death or serious injury of a pedestrian.

(3) Features of accidents involving motorcycle riders and moped riders

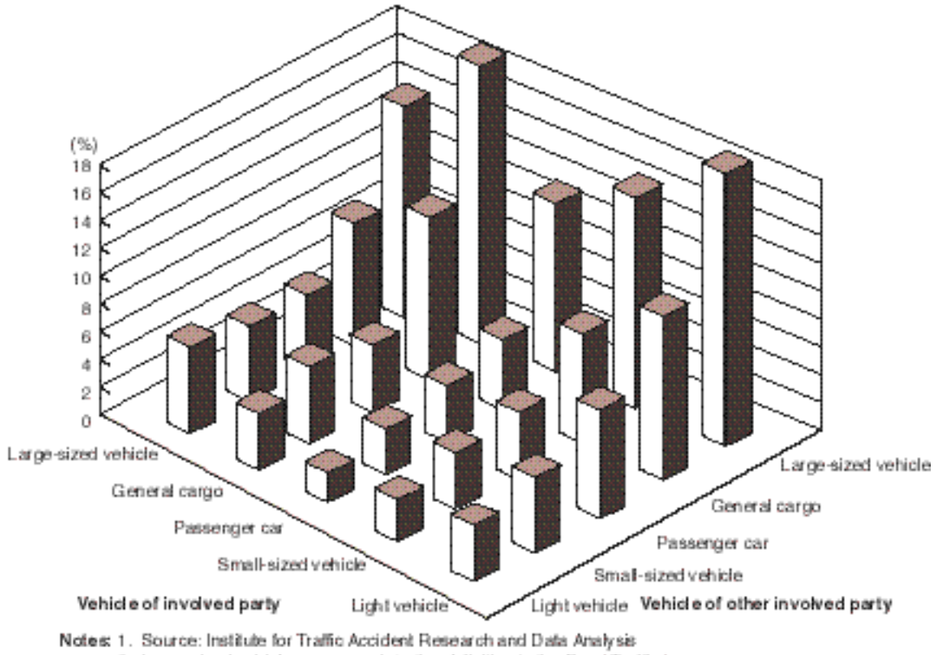
The number of casualties and that of fatalities occurred while the victims were riding motorcycles fell dramatically in the 16-24 age group. But, the number of casualties in the 25-64 age group has been trending slightly upward.

A look at traffic law violations of the motorcyclists killed or injured shows that approximately 30% of moped riders and approximately 25% of motorcycle riders were not breaching any road regulations at the time of their accidents. This is significantly lower than the equivalent rate for killed or injured motor vehicle drivers (of which approximately 69% were not violating road regulations).

(4) Features of accidents involving motor vehicles of different weights

Statistics on motor vehicle accidents involving two parties show that the seriousness of an

Figure 8 Fatality and Serious Injury Rates by Vehicle Type (1998)



Notes: 1. Source: Institute for Traffic Accident Research and Data Analysis
2. Large-sized vehicle corresponds to the definition in the Road Traffic Law.
3. General cargo, passenger car, small-sized vehicle and light vehicle here correspond to categories defined in the Road Transportation Vehicle Law. Note that passenger car and general cargo exclude large-sized vehicles as specified in 2. above.

accident is influenced not so much by the type of vehicle the casualty was using, but rather by the type of vehicle the other party was using. The larger the vehicle of the other party in the accident, the higher the incidence of death or serious injury. (In terms of the vehicle used by the casualty, passenger cars accounted for the lowest rates of fatality and serious injury.) (See **Fig. 8**)

Features of traffic accidents focusing on traffic accident victims

1. Traffic accident-related legal action and consultations

The numbers of traffic accident-related lawsuits and arbitration cases dealt with by courts in 1999 were 7,945 and 4,703 cases, respectively.

Consultations relating to traffic accidents are offered at police stations throughout Japan, traffic accident consultation centers operated by local public organizations and traffic accident consultation centers operated by the Japan Foundation of Bar Associations. The total numbers of consultations conducted at these places in FY1998 were, respectively, 182,843, 137,999 and 28,431.

2. Attitudes of traffic accident victims

The Traffic Accident Damage Investigation and Research Committee (composed of academics, National Police Agency representatives and other specialists) conducted a poll to assess the extent of suffering experienced by the victims of traffic accidents and the families of fatalities (June 1999). The results of the poll clearly showed that victims and bereaved families suffer 1) mental anguish, 2) dramatic life changes after accidents, 3) physical disability, and 4) protracted negotiations for compensation.

3. Occurrence of disabilities resulting from traffic accidents

On the basis of a survey conducted by the Ministry of Welfare (1996) on those left physically disabled by traffic accidents, the number, including children, is estimated approximately 130,000. Of these, an estimated 33,000 people have serious disabilities.

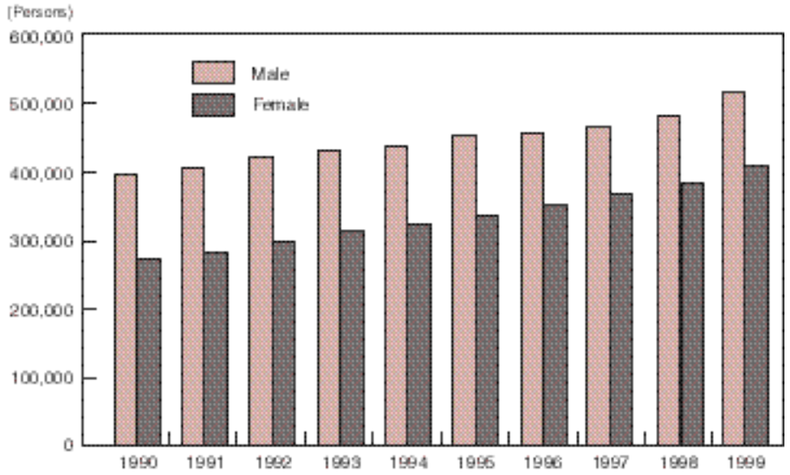
The number of payments made under the Compulsory Automobile Liability Insurance for serious disabilities incurred in traffic accidents has doubled in the last 10 years (from 973 cases in FY1989 to 1,944 in FY1998), posing a serious problem.

4. Accident circumstances focusing on parties other than primary parties

(1) Traffic accident statistics reveal that the casualty rate for the primary parties involved in traffic accidents has remained fairly steady, while that for secondary and other parties has been rising (both for male and females). Since 1990 the casualty rates for men and women involved in accidents as non-primary parties has increased by 1.3 times and 1.5 times respectively. (See **Fig. 9**)

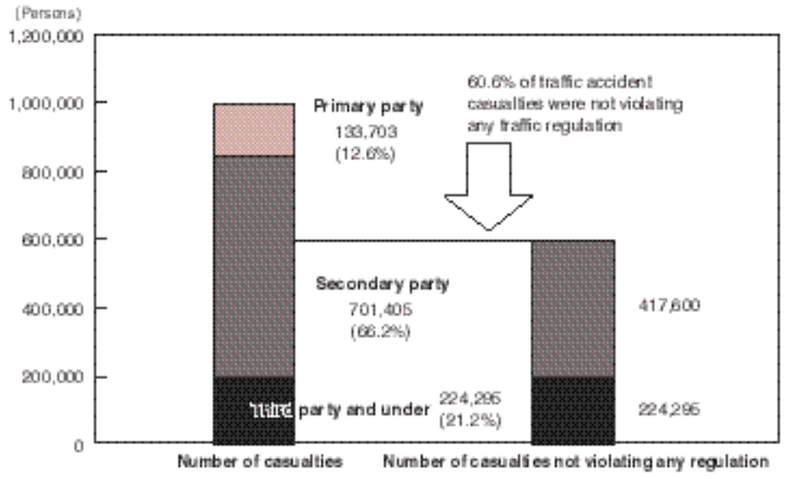
Note: Here, “primary party” means the party that is principally responsible for the traffic accident, i.e. the party who is most to blame. In accidents where the blame is more or less equally shared between multiple parties, the primary party refers to the party that suffers the least damage. A “secondary and other parties” or “non-primary parties” refer to the parties involved in the accident with the primary party.

Figure 9 Casualties of Non-Primary Parties



Note: Source: Institute for Traffic Accident Research and Data Analysis

Figure 10 Casualties by Type of Involved Party



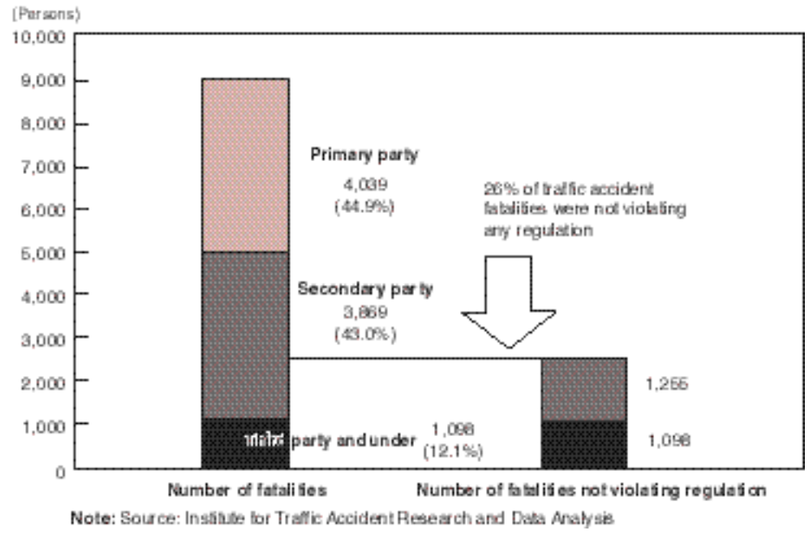
Note: Source: Institute for Traffic Accident Research and Data Analysis

(2) Of all traffic accident casualties, 87.3% (or 925,700 casualties) occurred among non-primary parties, the rate being approximately seven times the rate for primary parties. The number of non-primary parties who were killed or injured without committing any law violations at the time of the accident (“innocent victims”), accounted for 60.6% of all casualties. (See **Fig. 10**)

Furthermore, 55.1% of traffic accident fatalities (4,967) were non-primary parties. Non-primary parties who were killed without committing any law violations (“innocent victims”) made up 26.0% of all fatalities. (See **Fig. 11**)

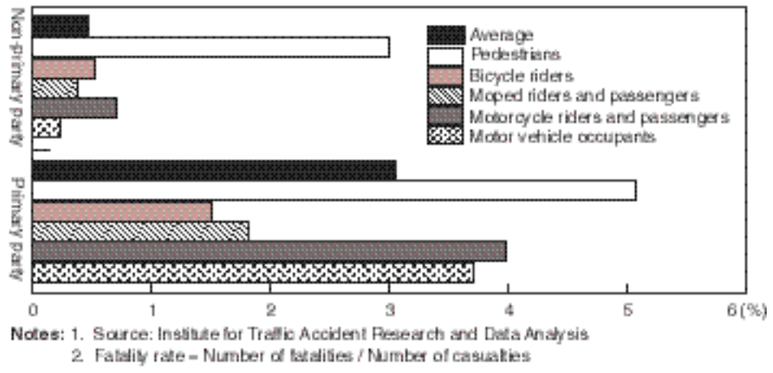
(3) A total of 45% of all non-primary parties killed in accidents were pedestrians, more than any other road user type. In comparison, most primary party fatalities were motor vehicle occupants (62%).

Figure 11 Fatalities by Type of Involved Party



Note: Source: Institute for Traffic Accident Research and Data Analysis

Figure 12 Fatality Rates by Road User Type



Notes: 1. Source: Institute for Traffic Accident Research and Data Analysis
2. Fatality rate = Number of fatalities / Number of casualties

(4) The overall fatality rate of secondary parties (0.5%) is far lower than that for primary parties. From this, we can reach the general conclusion that the parties less to blame for accidents have the lower fatality rate. (See **Fig. 12**)

Traffic safety measures considered from the standpoints of high-risk groups and accident victims, and future directions in this area

1. Measures to protect high-risk groups

(1) Some of the measures taken to make road traffic environments more friendly for the people at greatest risk of traffic accidents include: establishing walking spaces to assure pedestrian safety, e.g. making wider sidewalks; creating community zones; making traffic safety facilities such as traffic lights sensitive to pedestrians including the elderly, and installing better road lighting; implementing living zone restrictions, such as zones for schoolchildren and the elderly; constructing systems to assure safer passageways for pedestrians; and implementing comprehensive traffic safety inspection.

(2) Traffic safety education programs have been organized for infants and children. Traffic safety education programs, with an emphasis on participation, experience and practice, have also been organized for the elderly.

(3) Measures have been taken to make road traffic environments more friendly to bicycle riders. Other measures include stricter treatment of traffic violations by bicycle riders, holding bicycle safety classes at schools, and removing and disposing of abandoned bicycles.

(4) Education and guidance on proper use of seat belts is provided through traffic safety classes, traffic safety campaigns and various other activities.

Also, on the occasion of the Nationwide Traffic Safety Campaign, a national campaign was conducted to promote more widespread use of child safety seats. (From April 1, 2000, it is mandatory for all children under six years old to be seated in child safety seats while travelling in motor vehicles.)

(5) Some of the vehicle-related measures taken to protect people most at risk from traffic accidents include: promoting vehicle design improvements to protect pedestrians; promoting vehicle design improvements to reduce damage in collisions between large and small vehicles; and promoting development of passenger protection devices such as child restraints.

(6) Measures taken to ensure safer mobility for non-vehicle users and the elderly include: expanding public transport services; installing wide sidewalks around stations in urban areas, hospitals, welfare facilities, etc.; and reducing the level differences and steepness of existing sidewalks.

2. Promotion of rescue measures for traffic accident victims

(1) Measures taken to improve rescue and first aid systems for traffic accident victims include: promoting the wider spread of first aid skills; improving voice assistance for 119 (ambulance) calls and emergency medical treatment facilities; and implementation of an emergency report system.

(2) Measures taken to improve support to victims of traffic accidents include: reforming the Compulsory Automobile Liability Insurance scheme to offer better protection to traffic accident victims and improving system administration; improving the quality of traffic accident consultations; supporting people who incur serious disabilities in traffic accidents; supporting children who survive their parents lost in traffic accidents; and giving more consideration to victims during traffic accident investigations.

Chapter 3.
Major Road Traffic Safety Measures

1. Selective development of traffic safety facilities

During in FY1999, the fourth year of the Seven-Year Program for Provision of Traffic Safety Facilities, the following projects were implemented.

(1) Widening sidewalks; creating community zones in residential areas; upgrading traffic lights to enhance their responses to pedestrians; and installing more road lights and road signs.

(2) In order to prevent accidents on school routes, improvements were made to sidewalks, traffic signals, aboveground and underground pedestrian crossings and road signs.

(3) The causes of accidents occurring at “black spots” on trunk roads were analyzed. Measures to prevent accidents were then formulated and implemented based on the analysis. These include improving intersections, installing road lights and traffic lights, and reviewing traffic regulations.

(4) To help prevent vehicle accidents, traffic lights were upgraded to take advantage of more advanced technology, intersections were improved and more traffic lanes were added to roadways. In addition, to prevent nighttime traffic accidents, speed restriction systems and more road lights were installed.

(5) As part of the Universal Traffic Management Systems (UTMS), the operation of traffic management systems was upgraded or enhanced, through measures such as improving central control systems and traffic information relay equipment.

2. Improvement of Intelligent Transport Systems (ITS)

Extensive research and development, testing and infrastructure work have been underway in accordance with the “Basic Guidelines on the Promotion of Intelligent Transport System (ITS)” drawn up in 1996 by five ministries and agencies.

3. Promotion of Transportation Demand Management (TDM)

Transportation Demand Management (TDM) measures to improve transport efficiency and level out traffic demand across time and space have been comprehensively promoted.

Also, the government has been assisting new development and implementation of the Comprehensive Plans for Improving Metropolitan Traffic Flow project, which combines promotion of greater traffic capacity, multi-modal, and TDM measures.

Another current initiative, involving related government ministries and agencies, is the Omnibus Town Project, a comprehensive set of measures to make more effective utilization of bus services.

4. Expanded system for promoting the development of safe road traffic environments

The Road Traffic Environment Safety Promotion Conference was organized to discuss planning, management and evaluation of road traffic safety measures. This initiative was launched to implement traffic regulations more effectively and integrally with roadway development with the ultimate aim of establishing safe road traffic environments.

5. Promoting more widespread use of Child Restraint System (CRS)

Promoting the use of child restraints is an important objective of the Nationwide Traffic Safety Campaign. To promote the use of Child Restraint System (CRS), related organizations worked together to hold a seminar to provide education on the use of the child restraints and to support promotion of child restraint rental and recycling projects.

6. Ban on the use of mobile telephones while driving

Since November 1, 1999, the use of mobile phones while driving is illegal. To inform the wider public of this new stipulation, various publication and education activities were undertaken. Also, when driving license holders renew their licenses, they are informed about the dangers of using a mobile phone while driving.

7. Implementation of Regional Traffic Safety Check

Traffic safety inspections were conducted in a total of 1,347 areas around Japan, with the voluntarily participation of local people and road users. The results of the inspections prompted measures such as the repair of sidewalks and installation of traffic lights.

8. Providing information on Motor Vehicle Assessment

The motor vehicle assessment project releases results of collision tests. A side crash test has now been added to the existing frontal crash test and the range of test cars has been expanded to cover light motor vehicles and other vehicle types. In addition, information on how to properly use safety devices such as air bags and child restraints was also provided.

9. Expanded system for promoting vehicle safety measures

In September 1999, the Vehicle Safety Measures Review Council was established to examine guidelines and details of vehicle safety measures, to evaluate measures before and after implementations and to develop long-term plans for the measures.

10. Improvement of rescue and first aid systems

Medical helicopters with doctors on board were installed at two Rescue and First Aid Centers on a trial basis with the aim of saving more lives on the roads.

Part 2. Railway Transport

Chapter 1.
Trends in Railway Accidents

The long-term decline in the number of railway accidents is continuing as a result of the implementation of a comprehensive safety strategy involving the promotion of measures to prevent level crossing accidents, installation and upgrading of operational safety systems, improvements to control equipment and higher training standards. In 1999 a total of 904 railway accidents occurred, resulting in 689 casualties (338 fatalities). (See **Fig. 13**)

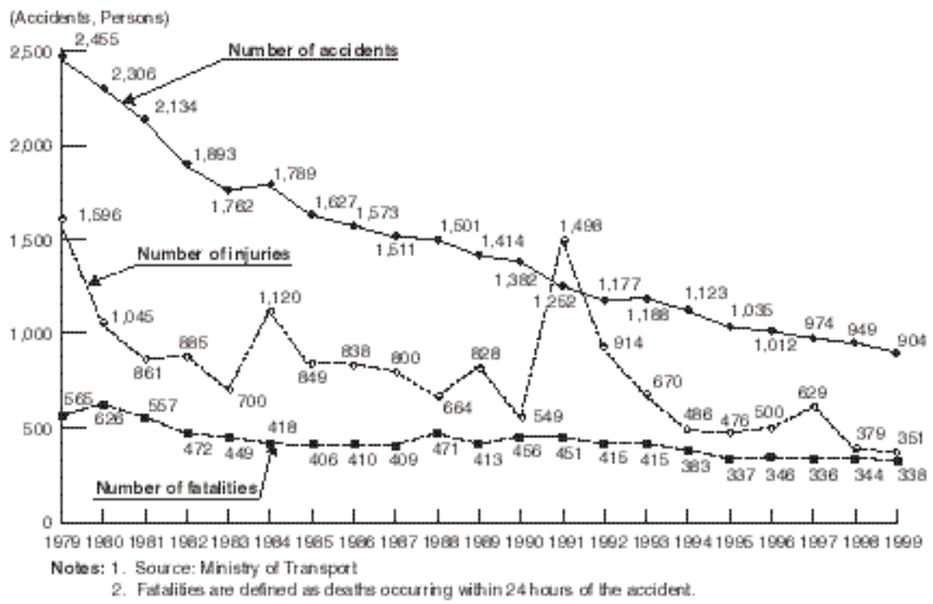
Looking at accidents by type, 51.0% involved destruction on level crossings, 37.8% involved human casualties, and 8.3% involved destruction on the roadway.

Chapter 2.
Measures to Address Accidents in Tunnels Caused by Falling Concrete and Railway Disruptions in the Metropolitan District

1. Measures to prevent accidents in tunnels caused by falling concrete

To address concerns about a spate of accidents that occurred in railway tunnels in 1999, an investigation was launched into the cause of the accidents and a review was made on how to maintain and manage tunnels to prevent similar accidents in the future. After receiving a report on the results of comprehensive safety inspections by West Japan Railway Company, the Transportation Safety Strategy Conference was held. The conference verified the assessment made by West Japan Railway Company and instructed all railway companies throughout Japan to urgently perform comprehensive inspections of all the railway tunnels they are using.

Figure 13 Changes in Railway Accidents and Casualties



Notes: 1. Source: Ministry of Transport
2. Fatalities are defined as deaths occurring within 24 hours of the accident.

2. Measures to address railway disruptions in the metropolitan district

After a string of railway disruptions last year (mainly in the Tokyo metropolitan area) resulting from troubles in operating systems, extended power outages caused by lightning, etc. the Ministry of Transport issued a warning letter to railway companies. The letter instructed the companies to improve the problem detection capabilities of their operating systems, and to educate and train staff to deal with abnormalities such as power failures more quickly.

Chapter 3.
Major Railway Safety Measures

1. Measures to prevent railway-crossing accidents

A variety of railway safety enhancement initiatives have been undertaken in accordance with the Sixth Comprehensive Crossing Accident Prevention Measures, including the construction of new overpasses and underpasses, structural improvements, and the installation of new safety equipment. Currently, efforts are in progress to consolidate roads intersecting railway lines.

2. Other traffic safety measures

(1) Improvements to track facilities and signal safety equipment

While promoting improvements to railway track facilities and signal safety equipment, the government is also issuing guidelines on enhanced training standards for railway crews in the area of basic operating procedures, adherence to duty, operational reliability, operations management, and programming and development of Automatic Train Stop (ATS) and Centralized Train Control (CTC) systems.

(2) Improving the earthquake resistance of railway facilities and equipment

To make existing railway facilities and equipment more earthquake resistant, a range of construction projects are being carried out on overhead bridges and abutments, on the central columns and bridges in “cut and cover” tunnels on Shinkansen (bullet train) lines, and on heavily used sections of standard railway lines. By the end of FY1998, earthquake resistance work had been completed on all Shinkansen lines and approximately 70% of standard lines.

Chapter 1.
Trends in Maritime Accidents

(1) The number of vessels involved in accidents requiring rescue work had been declining for many years. However, in 1999 the number rose to 1,920, an increase of 194 (11%) over the previous year.

(2) With the rapid growth in marine recreational activities in recent years, pleasure boats are making up a growing proportion of the vessels requiring rescue services after experiencing problems at sea. In 1997, for the first time, more pleasure boats than fishing vessels called for rescue operations. In 1999, a total of 806 pleasure boats called for rescue services, 70 more than the previous year and the highest number on record.

(3) The number of fatalities or missing persons from the vessels involved in accidents requiring rescue operations has hovered around the 200 mark over recent years. In 1999 the figure dropped to 146 (out of a total of 7,140 persons on board), the lowest on record. (See **Fig. 14**)

Chapter 2.
Improvements to Maritime Rescue Systems Prompted by the Fishing Boat Shinsei-maru Accident

1. Improvements to rescue procedures through the lessons learned from the Shinsei-maru accident

(1) The management of maritime rescue operations have been reformed by clarifying procedures to take upon receipt of SOS alerts, such as checking information, dispatching patrol vessels and aircraft, and cancelling SOS alerts.

(2) Searching capabilities have been improved by adding a new search method to the rescue manual that features the use of patrol vessels and aircraft sensitive to Global Maritime Distress and Safety System (GMDSS) equipment.

Nighttime and foul weather searching capabilities have also been improved, through the installation of infrared monitoring equipment on patrol vessels and aircraft, and improved accuracy in predicting vessel drift.

(3) A new system has been introduced to enable faster information transfers between the Maritime Safety Agency, Fisheries Telecommunications Station and fishing boats, to ensure more reliable communications in the event of fishing boat problems.

2. Improvements to maritime rescue systems prompted by the Shinsei-maru accident

(1) An Integrated Operation Command Control System has been introduced to integrate rescue

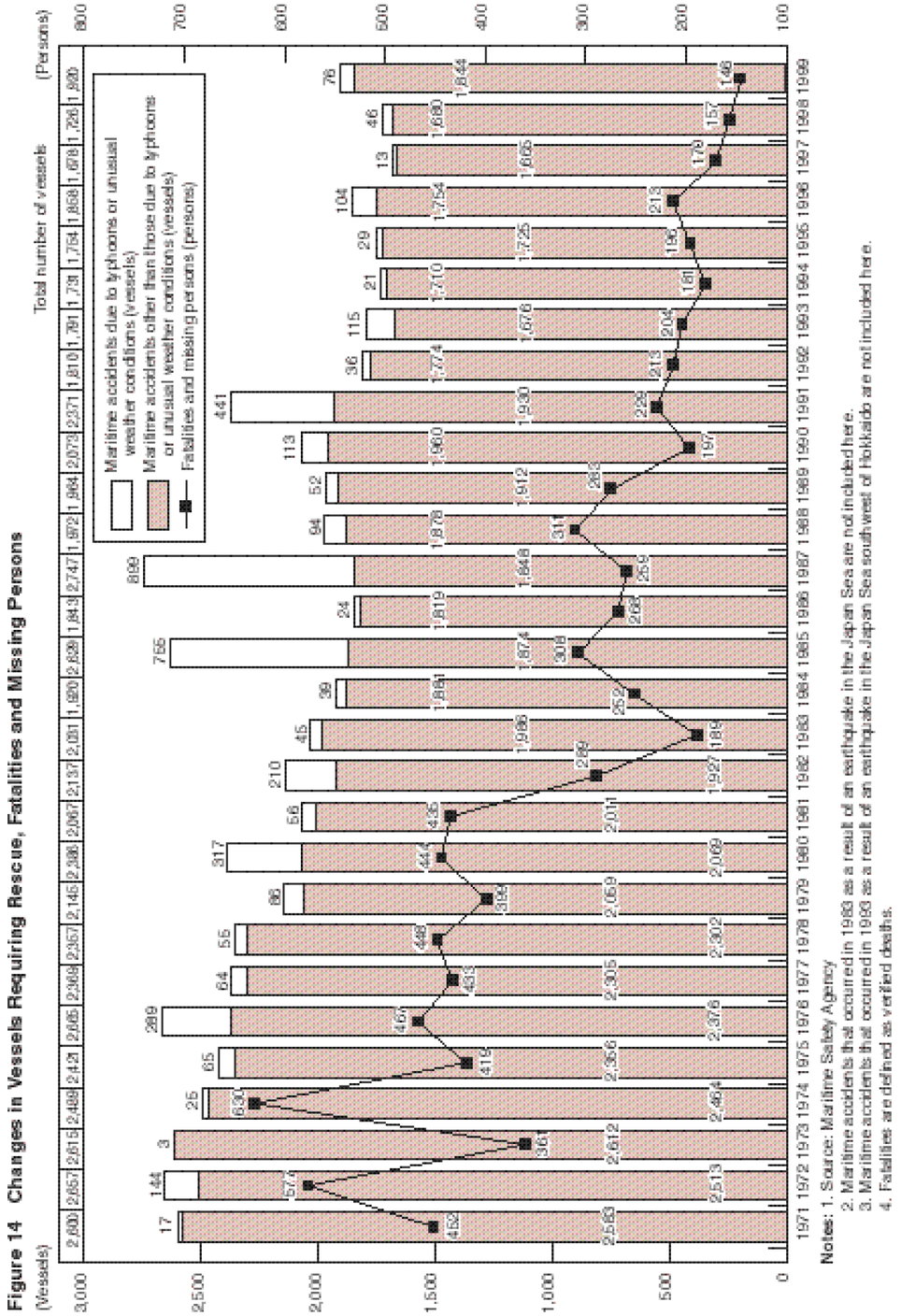


Figure 14 Changes in Vessels Requiring Rescue, Fatalities and Missing Persons

Notes: 1. Source: Maritime Safety Agency
2. Maritime accidents that occurred in 1983 as a result of an earthquake in the Japan Sea are not included here.
3. Maritime accidents that occurred in 1983 as a result of an earthquake in the Japan Sea southwest of Hokkaido are not included here.
4. Fatalities are defined as verified deaths.

information, improve operations control and provide greater operational flexibility. This system enables a faster initial response to emergencies. In addition, improved training and education of staff has been underway.

(2) A network of the relevant ministries and agencies has decided to cooperate in providing publications and guidance on the proper use of sattelite EPIRB (Emergency Position Indicating Radio Beacon) technology to improve the accuracy and reliability of official SOS alert announcements.

Chapter 3.
Major Maritime Traffic Safety Measures

(1) Beacons and channel marks have been improved for safer maritime traffic environments.

(2) Special regulations have been introduced for seaways subject to traffic congestion. Also, a Maritime Traffic Information System has been put in place and other measures have been taken.

(3) Operations management has been further improved by deploying operational supervisors to conduct boarding inspections, office investigations and training of operation managers.

(4) Japanese relevant maritime regulations have been revised to reflect an amendment to the International Convention for the Safety of Life at Sea (the SOLAS treaty) that applies stricter conditions to the structural strength and recoverability of bulk carriers that are damaged.

(5) Comprehensive safety inspections of vessels will be introduced to promote safety and to prevent ocean pollution. Currently, work is in progress to formulate evaluation methods, construct a database and improve operations systems.

(6) Based on the accident involving the Russian tanker Nakhodka, in 1997, Japan put forward a number of proposals to the International Maritime Organization (IMO). Japan called on the IMO to implement an international system to supervise foreign vessels and to impose more responsibility on flag states (countries in which vessels are registered) for conducting structural inspections of vessels. One by one the proposals were adopted by the IMO.

(7) Since oil spills from tanker accidents can result in massive damage, the government has ensured that funds are made available to pay damages to the victims of oil pollution, based on the Oil Pollution Compensation Guarantee Law and related agreements.

Chapter 1.
Trends in Aviation Accidents

The number of accidents involving civil aircraft in Japan has remained relatively stable with only slight fluctuations in recent years, despite substantial growth in air traffic. In 1999 there were 28 aircraft accidents. (See **Table 1**)

Chapter 2.
Promotion of Aviation Safety

(1) Despite the fierce competition expected to prevail between commercial airlines following deregulation of the air transport industry, aviation safety remains a top priority. Therefore, safety regulations were reviewed and the Aviation Law was revised.

(2) To assure the safety of foreign aircraft in Japan, inspections (Ramp Inspections) were commenced in FY1999 on the basis of the International Civil Aviation Treaty.

(3) A revision of the Aviation Law makes it mandatory, effective February 2000, for airline captains to report all serious incidents they are involved in. Accordingly, investigations were launched into such incidents as the case of an aircraft landing on the wrong runway at Haneda Airport.

(4) Tests in academic subjects and practical tests for aircraft technician qualifications will be standardized further using as a guide equivalent qualifications in Europe and the United States in

Table 1 Changes in Aviation Accidents and Casualties (Civil Aircraft)

Aircraft type / Fiscal year	Number of accidents								Number of casualties	
	Large aircraft	Small aircraft	Ultra-light aircraft	Heli-copters	Gyro-planes	Gliders	Airships	Total	Fatalities	Injuries
1994	3	4	8	13	0	2	0	30	277	14
1995	1	7	10	6	0	1	0	25	9	24
1996	5	11	5	8	0	4	0	33	23	206
1997	3	11	3	8	2	3	0	30	28	34
1998	3	14	5	6	1	6	0	35	21	54
1999	1	9	5	7	1	5	0	28	9	17

Notes:
1. Source: Ministry of Transport
2. All figures as of the end of December each year.
3. Includes accidents involving Japanese aircraft outside Japan (1 case in 1998).
4. Includes accidents involving foreign aircraft within Japan (2 cases in 1994, 1 case in 1995, 1 case in 1996, 1 case in 1998).
5. Numbers of accidents and casualties do not include deaths due to illness, or fatal or nonfatal injuries self-inflicted or otherwise on board an aircraft.
6. Fatalities are defined as deaths occurring within 30 days of the accident, and include missing persons.
7. Injury figures for 1997, 1998 and 1999 are provisional (owing to the fact that some accident investigation reports have been withheld).
8. Home-built aircraft were categorized as small aircraft until 1994 but since 1995 they have been categorized as ultra-light aircraft.

some instances.

Also, due to a revision of the Aviation Law a new Aviation Operations Technician qualification was established.

Chapter 3.
Major Air Traffic Safety Measures

(1) Planned developments of airports and aviation safety facilities are proceeding in accordance with the 7th Seven-Year Airport Development Plan.

(2) Work is continuing on preparing for the implementation of a next-generation aviation safety system based on the Multi-functional Transport Satellite (MTSAT). Efforts in this area include development and improvement of various facilities for communication, navigation and monitoring.

(3) Concerns about the earthquake resistance of airports and aviation safety facilities are being addressed through efforts to upgrade existing facilities and by duplication of air traffic control facilities and services.

(4) Safety standards for the operation of regular commercial flights are being raised by promoting better training of aircraft crews, improving aircraft operation control systems and ensuring that aircraft maintenance systems are thorough.

(5) To help prevent accidents involving small aircraft, the government is calling for a comprehensive commitment to accident prevention in the form of strict compliance to all safety-related laws and regulations and rigorous and exhaustive training of pilots.

(6) Guidelines are being issued to all organizations involved in aeronautic sports and recreational activities. Another initiative for promoting safety in aeronautic sports is the Authorization System for Excellent Sky Leisure Areas.

(7) In response to concerns about the ANA (All Nippon Airways) hijacking incident of July 1999, the Meeting on Safety Measures for Aircraft Cabins was convened. The gathering brought together academics and other specialists and worked out ways to improve safety inside aircraft.