

Road Safety Guidelines

for the Asian and Pacific Region

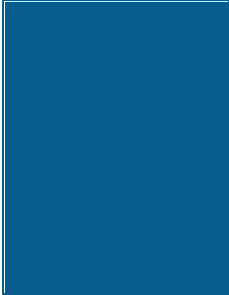
Appendix

A

USEFUL DOCUMENTS WORTH ACQUIRING



Asian Development Bank



Many useful documents, guidelines, and manuals exist in industrialized countries that would be worth acquiring by road safety professionals in developing countries of the Asian and Pacific region. Some of the more important and relevant of these are indicated below. The Road Engineering Association of Asia and Australasia (REAAA) guide (Reference 7) provides an excellent overview on other road safety resources available from around the world.

1. Guidelines for Accident Reduction and Prevention (International Edition). Institution of Highways and Transportation. 1990.
Available (in English) from Institution of Highways and Transportation, 6 Endsleigh Street, London WC1H 0DZ, United Kingdom
Tel: (44 171) 387 2525
Fax: (44 171) 387 2808
2. Guidelines for the Safety Audit of Highways. Institution of Highways and Transportation. 1996.
Available (in English) from 6 Endsleigh Street, London WC1H 0DZ, United Kingdom
Tel: (44 171) 387 2525
Fax: (44 171) 387 2808
3. Guide to Traffic Engineering Practice: Part 4 — Road Crashes. 1988.
Available (in English) from National Association of Australian State Road Authorities (NAASRA), Austroads,
P.O. Box 659, Haymarket, New South Wales 2000, Australia
Tel: (61 2) 218 6218
Fax: (61 2) 281 7458
4. Organisation for Economic Co-operation and Development (OECD) Road Research Reports
Various reports and publications including:
 - Targeted Road Safety Programmes (1994);
 - Road Infrastructure Rehabilitation and Safety Strategies in Central and East Europe (1995);
 - Improving Road Safety by Attitude Modification (1994); and
 - Marketing of Traffic Safety (1993).These are available (in English) from OECD Road Transport Research Programme, 2, rue André-Pascal, 75775, Paris Cedex 16, France
Tel: (33 1) 4524 8200
Fax: (33 1) 4524 8176
5. Road Safety Engineering Manual. 1992.
Available (in English) from the Royal Society for the Prevention of Accidents (RoSPA), Cannon House, The Priory Queensway, Birmingham BA 6BS, United Kingdom
Tel: (44 21) 200 2461
Fax: (44 21) 200 1254
6. Road Safety Handbook. Institute of Transport Economics. 1982.
Available (in Norwegian and Russian) from Institute of Transport Economics, P.O. Box 6110 Etterstad, M-0602, Oslo, Norway
Tel: (47 2) 257 3800
Fax: (47 2) 257 0290

APPENDIX A

7. Road Safety Resources for Developing Countries (A guide to what is available from whom). REAAA. 1992.
Prepared on behalf of REAAA, by and available (in English) from Australian Road Research Board, 500 Burward Highway, Vermont South Melbourne, Victoria, Australia
Tel: (613 3) 881 1555
Fax: (613 3) 887 8104
8. Safer Roads: A Guide to Road Safety Engineering. Ken Ogden, Monash University, Melbourne, Victoria, Australia. 1996.
Available (in English) from Avery Press, Gower House, Aldershot, Hampshire GU1N 3HR, United Kingdom
9. Towards Safer Roads in Developing Countries (a guide for planners and engineers). Ross Silcock/Transport Research Laboratory (TRL). 1991.
Available (in English and Spanish) from TRL Overseas Centre, TRL, Old Wokingham Road, Crowthorne, Berkshire RG11 6AU, United Kingdom
Tel: (44 1344) 773 131
Fax: (44 1344) 770 358
10. Towards Safer Roads in Developing Countries (a slide pack and instructor manual that can serve as a teaching aid based upon 9. above). Ross Silcock/TRL. 1992.
Available (in English) from TRL Overseas Centre, TRL, Old Wokingham Road, Crowthorne, Berkshire RG11 6AU, United Kingdom
Tel: (44 1344) 773 131
Fax: (44 1344) 770 358
11. The Traffic Accident Investigation Manual: At the Scene Investigation and Technical Follow Up, 9th Edition. 1986.
Available (in English) from North Western University Traffic Institute, P.O. Box 1409, Evanston, Illinois 60204, United States
12. Traffic Calming in Practice: County Surveyors Society, Department of Transport, and others. 1994.
Available from Landar Publishing, Ltd., Quadrant House, Kennington Lane, London SE11 5RD, United Kingdom
Tel: (44 171) 587 1681
Fax: (44 171) 735 1299
13. The Traffic Safety Toolbox: A Primer on Traffic Safety. Institute of Transportation Engineers. 1993.
Available in English from Institute of Transportation Engineers, 525 School Street, SW, Suite 410, Washington, DC 20024-2797, United States
Tel: (1 202) 554 8050
Fax: (1 202) 863 5486
14. Vulnerable Road Users in the Asian and Pacific Region (produced as part of the same regional technical assistance project [RETA 5620: Regional Initiatives in Road Safety] funded by the Asian Development Bank [ADB] as these guidelines, this book focuses on the problems and facilities for road users most at risk in the region). 1998.
Available in English (later in Chinese and Russian) from ADB, P.O. Box 789, 0980 Manila, Philippines
Tel: (63 2) 632 6803, 632 6463
Fax: (63 2) 636 2423

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Appendix **B**

INTERNATIONAL CONTACTS AND ORGANIZATIONS



Asian Development Bank

This Appendix lists some of the more important road safety practitioners and specialists in the Asian and Pacific region in order to encourage international exchange of information, experiences, and networking. This is preceded by addresses of some of the more important organizations involved and active in road safety in the region and who may be of interest to decision makers in the developing world.

1. International and funding organizations active in supporting road safety

Asian Development Bank (ADB)
P.O. Box 789, 0980 Manila
PHILIPPINES
Tel: (63 2) 632 6803/632 6463
Fax: (63 2) 636 2423

The World Bank
1818 H Street NW
Washington, DC 20433
UNITED STATES
Tel: (1 202) 477 1234
Fax: (1 202) 477 6391

United Nations Economic and Social
Commission for Asia and the Pacific
(ESCAP)
(Transport, Communications and Tourism
Division)
Rajadamnern Avenue
Bangkok 10200
THAILAND
Tel: (66 2) 288 1234
Fax: (66 2) 288 1000

World Health Organization (WHO)
(Injury Prevention Programme)
Avenue Appia 20
United Nations Building
ch-1211 Geneva 27
SWITZERLAND
Tel: (41 22) 791 2111
Fax: (41 22) 791 0746

2. Bilateral aid agencies most active in the Asian and Pacific region on road safety

Australian Agency for International
Development (AusAid)
G.P.O. Box 887
Canberra, ACT 2601
AUSTRALIA
Tel: (61 6) 278 4000
Fax: (61 6) 276 4880

Overseas Development
Administration (ODA)
94 Victoria Street
London SW1E 5JL
UNITED KINGDOM
Tel: (44 171) 917 0588
Fax: (44 171) 917 0016

Japan International Cooperation Agency (JICA)
P.O. Box No. 216, 48/F Shinjuku Building,
1-1, Nishi-Shinjuku 2-Chome Shinjuku-ku
Tokyo, 163-04
JAPAN
Tel: (81 3) 3346 5197
Fax: (81 3) 3346 5094

3. International technical organizations with safety interests

Institute of Transportation Engineers 525 School Street SW Suite 410 Washington, DC 20024-2797 UNITED STATES Tel: (1 202) 554 8050 Fax: (1 202) 863 5486	Permanent International Association of Road Congress (PIARC) 27 Rue Guenegaud 75006 Paris FRANCE Tel: (33 1) 4633 7190 Fax: (33 1) 4633 8460
International Road Federation (IRF) 525 School Street SW Washington, DC 20024-2797 UNITED STATES Tel: (1 202) 544 2106 Fax: (1 202) 479 0828	Prevention Routier International 75 Rue de Mamer L-8081 LUXEMBOURG Tel: (35 2) 31 8341 Fax: (35 2) 31 1460
Organisation for Economic Co-operation and Development (OECD) 2 Rue Andre Pascal F-75775 Paris Cedex 16 FRANCE Tel: (33 1) 4524 9594 Fax: (33 1) 4524 7960	Road Engineering Association of Asia and Australasia (REAAA) Chairman REAAA Technical Committee c/o Burwood Highway Vermont South Victoria 3133 AUSTRALIA Tel: (61 3) 9881 1555 Fax: (61 3) 9887 8104

4. Research institutes and organizations undertaking road safety research of relevance to developing countries

ARRB Transport Research Ltd. 500 Burwood Highway Vermont South Victoria 3133 AUSTRALIA Tel: (61 3) 9881 1555 Fax: (61 3) 9887 8104	International Association of Traffic and Safety Sciences (IATSS) 6-20-2 Yaesu Chuo-ku Tokyo 104 JAPAN Tel: (81 3) 3273 7884 Fax: (81 3) 3272 7054
Federal Highway Administration Office of International Programs US Department of Transportation 400 Seventh Street SW Washington, DC 20590 UNITED STATES Tel: (1 202) 366 0111 Fax: (1 202) 366 9626	Swedish National Road & Transport Research Institute (VTI) S-581, 95 Linkoping SWEDEN Tel: (46 13) 203 000 Fax: (46 13) 141 436
Institute for Road Safety Research P.O. Box 170 2260 AD Leidschendam THE NETHERLANDS Duindoorn 32 Tel: (31 70) 320 9323 Fax: (31 70) 320 1261	Technical Research Centre of Finland (SVOV) Road, Traffic, and Geotechnical Laboratory Traffic Section/Safety Team Sahkomiehentie 3 FIN-02150 ESPOO FINLAND Tel: (35 8) 0456 4591 Fax: (35 8) 046 4850

APPENDIX B

Institute of Transport Economics P.O. Box 6110 Etterstad N-0602 Oslo NORWAY Tel: (47 22) 573 800 Fax: (47 22) 570 290	Transport Research Laboratory (TRL) Overseas Centre Old Wokingham Road Crowthorne Berkshire RG11 6AU UNITED KINGDOM Tel: (44 1344) 773 131 Fax: (44 1344) 770 3056
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Institut National de Recherche (INRETS)
Sur les Transports et leur Sécurité
2 Avenue du Général Malleret-Joinville
94114 Arcueil Cedex
FRANCE
Tel: (33 47) 407 163
Fax: (33 45) 475 606

5. Research organizations in the region active on road safety issues

Central Road Research Institute (CRRRI) P.O. CRRRI Mathura Road New Delhi 110020 INDIA Tel: (91 11) 691 2268 Fax: (91 11) 684 5943	National Transport Research Centre (NTRC) Ministry of Communications Sector H-8/3 Islamabad PAKISTAN Tel: (92 51) 253 676 Fax: (92 51) 253 651
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Indian Institute of Technology (IIT) New Delhi 110016 INDIA Tel: (91 11) 685 8703 Fax: (91 11) 686 2037	Traffic Management Research Institute (TMRI) Public Security Ministry 1 Qianxiang Lane 1 Qianrong Road Wuxi, Jiangsu PEOPLE'S REPUBLIC OF CHINA Tel: (86 510) 551 6123 Fax: (86 510) 551 5315
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Institute of Road Engineering (IRE) Jl Raya Timur 264 P.O. Box 2 UJB Bandung 40294 INDONESIA Tel: (62 22) 780 2251 Fax: (62 22) 780 2253	Transport Engineering Design Incorporation (TEDI) Ministry of Transport and Communications 278 Ton Duc Thang Hanoi VIET NAM Tel: (84 4) 851 8366
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6. Others/individuals

European Transport Safety Committee (ETSC) Rue du Cornet 34 B-1040 Brussels BELGIUM Tel: (32 2) 230 4106, 4004 Fax: (32 2) 230 4215	Global Traffic Safety Trust International (GTST) c/o Royal Australasian College of Surgeons Spring Street Melbourne Victoria 3000 AUSTRALIA Tel: (61 3) 622 1033 Fax: (61 3) 663 4075
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APPENDIX B

7. NETWORK OF ROAD SAFETY PROFESSIONALS ACTIVE IN THE ASIAN AND PACIFIC REGION BY COUNTRY AND ORGANIZATION

ARMENIA

Papik Karchikian, The First Deputy of Director General of Armenian Road Directorate, 21 Koriun Street, Yerevan 375009. Tel: (374 2) 582 712; Fax: (374 2) 151 830; E-mail: hpiu@arminco.co

Hakob Petrossian, Road Safety and Planning Coordinator, the World Bank, Armenian Highway PIU, 21, Koriun Street, Yerevan 375009. Tel: (374 2) 582 712; Fax: (374 2) 151 830; E-mail: hpiu@arminco.co

AUSTRALIA

David Anderson, General Manager Road Safety, VIC Roads, 4/F, 60 Denmark Street, Kew, Victoria 3101. Tel (work): (61 3) 9854 2700; Fax: (61 3) 9854 2668

John Catchpole, Senior Research Scientist, ARRB Transport Research Ltd., 500 Burwood Highway, Vermont South, Victoria 3133, Tel: (61 3) 9881 1626; E-mail: jophnca@arrb.org.au

Phil Charles, Executive Director, Road Strategies and Services, Mains Roads Western Australia, Don Aitken Centre, Waterloo Crescent, P.O. Box 6202 East Perth 6892. Tel: (61 9) 323 4161; Fax: (61 9) 323 4547

Paul Duignan, Leader, Vehicle Safety Standards, Roads and Traffic Authority, 260 Elizabeth Street, Sydney, NSW 2000. Tel: (61 2) 9218 3669

Jim Jarvis, Professor of Civil Engineering, Monash University, Melbourne. Tel (work): (61 3) 9881 1580; Fax: (61 3) 9887 8104; Tel (home): (61 3) 9853 5909; E-mail: jimj@arrb.org.au

Ian Johnston, Executive Director, ARRB Transport Research Ltd. (Member of Steering Committee), 500 Burwood Highway, Vermont South, Victoria 3133. Tel (work): (61 3) 9861 1555; Fax: (61 3) 9887 8104

Merv Lane, Former Superintendent NSW Police, 18 Spruce Street, Blacktown, NSW 2148. Tel: (02) 9622 1795

Peter Makeham, Director, Federal Office of Road Safety, GPO Box 594, Canberra ACT 2601. Tel: (61 6) 274 7447; Fax: (61 6) 274 7922

Frank McDermott, Chairman; Consultative Committee on Road Traffic Accidents, Victoria, College of Surgeons, Road Trauma, Spring Street, Melbourne. Tel: (61 3) 9249 1200

Robert Ramsay, Manager Information, Roads and Traffic Authority, 260 Elizabeth Street, Sydney, NSW 2000. Tel: (61 2) 9218 6464; E-mail: Robert_Ramsay@rta.nsw.gov.au

G. A. Ryan, Director, Road Accident Prevention Research Unit, Department of Public Health, University of Western Australia, Nedlands, WA 6907. Tel (work): (61 9) 380 1301; Fax: (61 9) 380 1199; Tel (home): (61 9) 388 2679; Fax: (61 9) 388 2679; E-mail: tryan@quokka.epidem.uwaedu.au

Ray Taylor, Research Director, ARRB Transport Research Ltd., 500 Burwood Highway, Vermont South, Victoria 3133. Tel: (61 3) 9881 1660; E-mail: rayt@arrb.org.au

Peter Waugh, Manager Road Safety Strategy, Main Roads Western Australia, Don Aitken Centre, Waterloo Crescent, P.O. Box 6202, East Perth, WA 6892. Tel: (61 9) 323 4309; Fax: (61 9) 323 4629; E-mail: e5885@wa.wa.gov.all

BANGLADESH

Muhammad Ali, Member (Curriculum), National Curriculum and Textbook Board, 69-70 Motijheel Commercial Area, Dhaka. Tel (work): (880 2) 955 6445; Fax: (880 2) 956 5724; (Home) Tel: (880 2) 869 345

Abdul Alam Bhuiyan, Director (Engineering), Bangladesh Road Transport Authority, Allenbury, Old Airport Road, Tejgaon, Dhaka. Tel (work): (880 2) 911 5544 ; Fax: (880 2) 911 6163; Tel (home): (880 2) 896 822

A. F. M. Ruhul Haque, Director, Professor and Head of Orthopaedic Surgery, Rehabilitation Institute and Hospital for Disabled (Orthopaedic Hospital and Institute) Sher-E-Bangla, Nagar, Dhaka. Tel (work): (880 2) 814 812, 314 075; Fax: (880 2) 814 812; Tel (home): (880 2) 814 388, 818 133; E-mail: rhaque.trauma@dhaka.agni.com

Alhaj Mockbul Hossain MP, President, Bangladesh Sarek Paribahan Samity (National Road Transport Owners Association of Bangladesh) 12/1 Tajmohal Road, Mohammadpur, Dhaka. Tel: (880 2) 912 0999; Fax: (880 2) 813 393

APPENDIX B

Alamgir Mojibul Hoque, Professor, Bangladesh University of Engineering and Technology (BUET), Department of Civil Engineering, Dhaka 1000. Tel (work): (880 2) 864 640/4, Ext 303; Fax: (880 2) 863 026; Tel (home): (880 2) 860 444; E-mail librarian.buet@drik.bgd.toolnet.org

M. D. Mazharul Hoque, Bangladesh University of Engineering and Technology (BUET), Department of Civil Engineering, Dhaka 1000. Tel (work): (880 2) 864 640/4 Ext 316; Fax: (880 2) 863 026, 863 046; Tel (home): 864 640/4 Ext 207; E-mail: Librarian.buet@drik.bgd.toolnet.org (currently at University of Southampton, United Kingdom)

A. N. Hussain, Chairman, Bangladesh Road Transport Authority, Allenbury, Old Airport Road, Rejgaon, Dhaka. Tel (work): (880 2) 811 400; Fax: (880 2) 911 6163; Tel (home): (880 2) 872 232

Quazi Zakaria Islam, Senior Technical Officer, Development Design Consultants Ltd., 23 New Eskaton Road, Dhaka. Tel (work): (880 2) 885 761, 871 075; Fax: (880 2) 883 713; Tel (home): (880 2) 803 561.

M. D. Abdul Jalil, Additional Deputy Police Commissioner, Traffic Division, Dhaka Metropolitan Police, 10 Circuit House Road, Shantinagar, Dhaka. Tel (work): (880 2) 409 513; Tel (home): (880 2) 329 864; Fax: (880 2) 838 210

C. G. Karim, Superintendent Engineer, Roads and Highway Department, "Sarak Bhaban," Ramna, Dhaka 1000. Tel (work): (880 2) 955 7756; Fax: (880 2) 955 7756; Tel (home): (880 2) 891 781

Mohammad Rafi Khan, Member, National Road Safety Council, Chairman, Accident Management Subcommittee, International Centre for Disease, 128 Dhan Mondir R/A Road 3, Dhaka. Tel (work): (880 2) 83344; Fax: (880 2) 863 326; Tel (home): (880 2) 869 299

Mustaque Hossain Khan, C.O. (Superintendent of Police) Armed Police Battalion, Dhaka. Tel (work): (880 2) 894 325, 891 314; Fax: (880 2) 894 325; Tel (home): (880 2) 822 270.

Nur Mohammad, Deputy Police Commissioner, Traffic Division, Dhaka Metropolitan Police, 10 Circuit House Road, Shantinagar, Dhaka. Tel (work): (880 2) 412 127; Tel (home): (880 2) 383 931; Fax: (880 2) 838 210

Mohiuzzaman Quazi, Program Officer, Transportation, World Bank Office, 3A, Paribaeh, Dhaka 1000. Tel (work): (880 2) 861 056; Fax: (880 2) 863 220; Tel (home): (880 2) 324 297

M. Abdur Rab, Assistant Director (Engineering) Bangladesh Road Transport Authority, Allenbury, Old Airport Road, Tejgaon, Dhaka. Tel (work): (880 2) 324 478; Fax: (880 2) 911 6163; Tel (home): (880 2) 894 488

Tofazzal Hossain Sarker, Research Officer, National Curriculum and Textbook Board, 69-70 Motijheel Commercial Area, Dhaka. Tel (work): (880 2) 956 3686; Fax: (880 2) 956 5724; Tel (home): (880 2) 314 543

Lutfar Rahman Talukder, Deputy Secretary, Roads and Railways Division, Ministry of Communications, GOB, Building No. 7 Room No. 824, 8/F, Bangladesh Secretariat, Dhaka. Tel (work): (880 2) 868 296; Fax: (880 2) 866 636; Tel (home): (880 2) 841 700

CANADA

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PEOPLE'S REPUBLIC OF CHINA

Chen Guosheng, Senior Engineer of China Highway Engineering Consultant and Supervision General Co., No. 7 Building, Hua Yan Li, Chao Yang, Beijing 100029. Tel: (86 1) 6204 5312; Fax: (86 1) 6204 0678

Hua Yong Hong, Assistant of Road Safety Research, Traffic Management Research Institute of Public Security Ministry, Qianxiang Lane 1, Qianrong Road, Wuxi, Jiangsu. Tel: (86 5) 1055 16123; Fax: (86 5) 1055 15315

Jia Ping, Deputy Division Chief, Ministry of Public Security, Science and Technology Division, Traffic Management Bureau, Beijing. Fax: (86 1) 6204 0678

Xu Kang Sheng, Director, Traffic Management Research Institute of Public Security Ministry, Qianxiang Lane 1, Qianrong Road, Wuxi, Jiangsu. Tel: (86 5) 1055 15645; Fax: (86 5) 1055 15315

Liu Xiaming, Professor of Transport Engineering, Graduate School, Beijing Polytechnic University, Beijing 100022. Tel: (86 1) 673 91458; Fax: (86 1) 6739 1458; E-mail: lxming@solaris.bjpu.edu.cn

APPENDIX B

FIJI

Vuetasu N. Buatoka, Department Secretary (Planning and Design), Ministry of Works, Infrastructure and Transport, PWD Ganilau House, Suva. Tel (work): (679) 315 133; Fax: (679) 301 198; Tel (home): (679) 370 860

Qalo Bulatiko, Assistant Commissioner of Police Operations, Fiji Police Force, Box 239, Police Headquarters, Suva. Tel: (679) 312 999; Fax: (679) 303 1999

Sefanaia Koroi, Chief Education Officer Primary, Ministry of Education, Women and Culture, Marela House, Government Buildings, Suva. Tel (work): (679) 314 477; Fax: (679) 303 511; Tel (home): (679) 320 127

Michael O' Leary, c/o World Health Organization, P.O. Box 113, Suva. Tel: (679) 302 529; Fax: (679) 300 462; E-mail: mjol@is.com.fj

Peni D. Qarau, Chairman, National Road Safety Council, Fiji, P.O. Box 7125, Nasinu. Tel: (679) 314 400; Fax: (679) 302 664; Tel (home): (679) 362 451

Chandra Shekhar, Executive Director, National Road Safety Council, P.O. Box 7125, Nasinu. Tel (work): (679) 394 886; Fax: (679) 393 253; Tel (home): (679) 387 680

Inia Tamani, Controller of Road Transport, Road Transport Department, P.O. Box 6677, Nasinu. Tel: (679) 392 166; Fax: (679) 395 474

Isoa G. Tamani, Assistant Controller of Road Transport, Department of Road Transport, Box 6677, Nasinu. Tel: (679) 392 166; Fax: (679) 395 474

Raphael Warwick-Smith, Senior Engineer, Roads (Traffic and Planning) Ganilau House, Private Mail Bag, GPO, Suva. Tel (work): (679) 315 759; Fax: (679) 301 193; Tel (home): (679) 340 575

HONG KONG, CHINA

H. L. Cheng, Chief Engineer, Road Safety and Standards Division, Transport Department, Room 3501, 35/F Hopewell Centre, 183 Queen' s Road East, Wanchai. Tel: (852) 2529 8338; E-mail: hlcheng@td.gcn.gov.hk

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Robert T. W. Yeoh, Road Safety Manager, Hong Kong School of Motoring, Che Kung Miu Road, Tai Wai, Shatin, New Territories. Tel (work): (852) 2604 6123; Fax: (852) 2694 8472; Tel (home): (852) 2692 0232; Fax: 852 2603, 1734

INDIA

A. P. Bahadur, Director, Indian Roads Congress, Jamnagar House, Shahjahan Road, New Delhi 110 011. Tel (work): (91 11) 338 4543; Fax: (91 11) 338 1649; Tel (home): (91 11) 551 2294

R. D. Mehta, Chief Engineer (Traffic and Transportation), Government of India, Ministry of Surface Transport, Parliament Street, New Delhi 110011. Tel: (91 11) 371 9998; Fax: (91 11) 371 0236

Dinesh Mohan, Head, Indian Institute of Technology Delhi, Centre for Biomedical Engineering, Hauz Khas, New Delhi 110016. Tel: (91 11) 685 8703; Fax: (91 11) 685 8703, 686 2037; E-mail: dmohan@cbme.iitd.ernet.in

S. Padam, Director, Central Institute of Road Transport, Bhosari, Pune-411 026. Tel (work): (0212) 779 177; Fax: (0212) 779 426; Tel (home): (0121) 779 090 E-mail: cirt/pune@dartmail.dartnet.com

M. N. Reddi, Director, Karnataka Government Computer Centre, C-22, IST Cross, 8th Main, Vasanthnagar, Bangalor 560 052. Tel (work): (91 80) 226 3206; Fax: (91 80) 226 3206; Tel (home): (91 80) 225 9753

T. S. Reddy, Head, Traffic and Transportation Division, Central Road Research Institute, P.O. CRRI, Mathura Road, New Delhi 110020. Tel (work): (91 11) 691 2268; Fax: (91 11) 684 5943; Tel (home): (91 11) 683 4739; E-mail: CRRI@sirnetd.ernet.in

S. C. Saluja, General Manager, National Highways Authority of India, Ministry of Surface Transport, 1 Eastern Avenue, Maharani Bagh, New Delhi 110065. Tel (work): (91 11) 692 4381; Fax: (91 11) 692 4383; Tel (home): (91 11) 2434 3555

APPENDIX B

P. K. Sikdar, Professor, Transportation Systems Engineering, Civil Engineering Department, Indian Institute of Technology, Powai, Bombay. Tel (work): (91 22) 578 2545, 578 6530, 578 3557 Ext. 2314; Fax: (91 22) 578 3480; Tel (home): (91 22) 578 2545, 578 6530, 578 3557 Ext. 4314; E-mail: pksikdar@gemini.civil.iitb.ernet.in

Mathew Varghese, Consultant Orthopaedic Surgeon, St. Stephen's Hospital/IIT Delhi, St. Stephen's Hospital, Tees Hazari, New Delhi 110054. Tel (work): (91 11) 251 1488; Fax: (91 11) 686 2037; Tel (home): (91 11) 225 1315; Fax: (91 11) 293 2412; E-mail: dmohan@cbme.iitd.ernet.in

INDONESIA

Ir. Iskandar Abubakar, Director, Directorate of Urban Transport and Traffic System (BSLLAK), Directorate General of Land Transport, Ministry of Communications, Jalan Jenderal Sudirman No. 77 Jakarta 12199. (021) 570 6618; Fax (62 21) 570 6648

Ir. Tjokodrde Gde Agung, Head of Subdirector of City Traffic, Directorate of BSLLAK, Directorate General of Land Transport, Ministry of Communications, Jalan Jenderal Sudirman No. 77 Jakarta 12199. Tel (work): (62 21) 570 6618; Fax: (62 21) 570 6648; Tel (home): 586 2647

Ir. Moh. Anasaly, Director, Directorate of Engineering, Directorate General of Highways, Ministry of Public Works, J. L. Pattimura 20, Kebayoran Baru, Jakarta 12110. Tel (work): (62 21) 724 7389; Fax: (62 21) 724 5002; Tel (home): (62 21) 769 0860

Sony Baksono, Director, Directorate of Road Transport and Traffic (LLJ), Directorate General of Land Transport, Ministry of Communications, Jalan Jenderal Sudirman No. 77 Jakarta 12199. Tel: (62 21) 570 6618; Fax: (62 21) 570 6648

Suyono Dikun, Head, Transportation Bureau, National Planning Board (BAPPENES), Jalan, Taman Suropati No. 2 Jakarta 10310. Tel/Fax: (62 21) 314 8550

Gandhi Harahap, Director, Bina Jalan Kota, Directorate General of Highways (Bina Marga) Jl Pattimuna No. 20, Jakarta. Tel (work): (62 21) 724 4045; Fax: (62 21) 724 6973; Tel (home): (62 21) 799 6174

Ir. Hikmat Iskandar, Researcher, Institute of Road Engineering (Ire) Ministry of Public Works, Jalan Raya Timur 264 Ujung Berung Bandung, 40294, West Java. Tel: (62 21) 781 1881; Fax: (62 21) 780 2112

Pepen Muhamad, Head of Subdirector Traffic and Road Safety, Directorate of LLAJ, Directorate General of Land Transport, Ministry of Communications, Jalan, Jenderal Sudirman No. 77 Jakarta 12199. Tel: (62 21) 570 6618; Fax: (62 21) 570 6648

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Road Safety Guidelines
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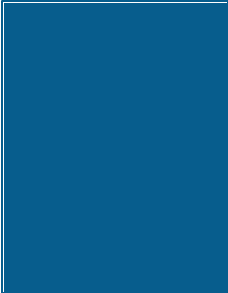
Appendix

C

**COMPARATIVE
STUDY: FIJI
ROAD SAFETY
ACTION PLAN**



Asian Development Bank



1 THE PROBLEM

Fiji, in common with other developing countries, saw a deterioration in road safety during the period 1988-1991. Increasing vehicle fleets began to cause problems, rehabilitated roads supported faster traffic through small communities along the national road network, and inadequate enforcement and medical services meant that driver behavior was poor and injured victims did not get the early medical attention they needed. There was a fragmentation of responsibilities and inadequate knowledge and effort to tackle the problems facing the country. Road accident deaths increased steadily year by year and peaked in 1991, the year before the start of the country's Road Safety Action Plan.

2 THE DEVELOPMENT OF A STRATEGY AND ROAD SAFETY ACTION PLAN

The Asian Development Bank (ADB) appointed a road safety advisor to assist the Bank and the Fiji Government to develop a strategy and to oversee implementation of a Road Safety Action Plan. The purpose of the Action Plan was to develop institutional capability to address road safety problems effectively and to oversee implementation of the most urgent improvements over a three- to three-and-a-half-year period. Periodic inputs were provided by other specialists working under the direction of the road safety advisor.

3 IMPROVEMENTS IMPLEMENTED

The improvements implemented covered all major sectors related to road safety and the individual countermeasures were phased to ensure maximum effect. An Action Plan was devised to make best use of the US\$3 million budget for the Plan. The strategy adopted was as follows:

- 1 complete funding of key strategic improvements needed in order to carry out other activities (for example an improved accident data system);
- 2 "seed" money to encourage desirable

developments. Funds to initiate or support, for a limited period only, selected developments and activities that would eventually be taken over by other funding;

- 3 institution building for safety. Funds to encourage and reinforce the development of existing Fijian organizations and institutions that could make a long-term contribution to safety by assisting them in developing appropriate organizational structures, working manuals, courses, and training programs to tackle the road safety problems in an efficient manner; and
- 4 staffing development and technical assistance. Funds for specialist training of key personnel so that in due course the wider safety improvements necessary could be implemented in Fiji by adequately trained and skilled local professionals; for the interim period when specialist consultancy assistance would be required to assist in planning and implementation of the key strategic improvements; and the training of local staff through demonstration projects.

The following pages outline the activities undertaken as part of the Fiji Road Safety Action Plan and the framework used in monitoring implementation of the Action Plan is presented at the end of this Appendix.

4 FIJI ROAD SAFETY ACTION PLAN

The focus and strategy of the Action Plan was as follows: initiate the most urgent improvements; tackle problems where there were known and effective solutions available; and to develop and train local professionals in the key institutions so that they could more effectively implement the wider road safety improvement program needed in Fiji.

The project was broken down into two phases with the four most urgent projects (1-4 below) undertaken from the start and the second set of projects brought into play during the second phase of the Action Plan. The sectors addressed and the improvements implemented are detailed below.

1. Accident data system. The existing data system was poor and allowed only limited manual analysis to be undertaken, which gave little or no understanding of the characteristics and nature of the road safety problem in Fiji. A new accident data form was developed and introduced nationally after pilot testing. A new micro-computer-based accident data storage, retrieval, and analysis system (Microcomputer Accident Analysis Package [MAAP] 5 from Transport Research Laboratory [TRL], United Kingdom [UK]) was established at police headquarters and a police accident unit trained to operate all aspects of the system. The Police Accident Unit (PAU) is now operating independently and providing the annual statistics reports to all key agencies so that appropriate countermeasures can be drawn up in each sector.
2. National Road Safety Council (NRSC). Legislation was developed and passed to

establish an NRSC with statutory powers to oversee road safety improvement. A building was provided to create an NRSC headquarters and four vehicles were provided to operate as mobile publicity exhibitions. Videos, overhead projectors, and other training equipment were provided to assist in carrying out education and publicity, and road safety materials were produced to raise public awareness. Funding mechanisms were included in the legislation so that a levy of 10 percent was to be applied to all third party insurance policies to be handed over to the Safety Council. Some staff were seconded from other member agencies of the NRSC and other staff, such as the executive director and several technical staff, were hired directly by the NRSC to carry out the secretariat function of the Council. The Council is now fully active and carrying out publicity and education activities all over Fiji through a network of local divisional councils, and even (in some cases) municipal councils.

3. Infrastructure Improvements. A small Traffic and Road Safety Unit was established in the public works department and the staff trained in carrying out accident prevention and accident reduction. Accident prevention activities included the introduction of safety audits, improved access and development controls, and training of the unit in road safety issues. The accident reduction activities included identification and elimination of

Plate 1 (left):
Road marking to improve safety.



Plate 2 (right):
Police accident unit staff.



the worst accident black spots, the implementation of route action plans and mass action plans, and the development of traffic management schemes for the main towns and urban areas in Fiji. Guidelines and procedure manuals have been prepared for the Unit, which is, with its three Fijian engineers, operating independently and able to carry out an effective accident prevention and accident reduction program, and provide advice on these activities to other engineers in divisions and municipalities.

4. Traffic Law Enforcement. In this area, considerable assistance was given to establish a Highway Patrol along the major road network and to establish a traffic police course at the Police Training College. Police personnel were also in-

structed in the use of radar, speed detectors, and alcohol testing devices, and a number of practical exercises were undertaken to train them in carrying out operations on drunk-driving, road worthiness checking, and speed detection. Traffic police were also provided with specialist rescue equipment for cutting vehicles and rescuing victims, and trained in the use of this equipment. The net result is that there is now a reasonably effective traffic police enforcement capability along the major national roads in Fiji. The police are capable of traffic law enforcement and are able to provide a rescue capability also.

- 5 Traffic Legislation. As part of the Action Plan, the existing traffic act was revised and a draft act prepared. It is now awaiting formal approval by Parliament. This, among other issues, addresses gross overloading and how to deter this activity and enforce compliance using mobile weighbridges.
- 6 Child Traffic Education. A number of important educational projects was initiated by the child education specialist. The projects included a road safety theater production to visit schools, university research into road skills training programs for children, the printing and distribution of guidelines for teachers so that every teacher would have some knowledge about teaching safety to young children, development and printing of a road code and leaflets on lessons for life for parents so that they could be involved in teaching children, and development and printing of special school materials based on a character (the "Road Ranger"). The advisor also trained a counterpart in road safety education officer and working with him and

**Plate 3 (below):
Police spot checks on
drink-driving.**

**Plate 4 (bottom):
Safety of schoolchildren**

**Plate 5 (right):
Overloaded crane truck.**





Plate 6:
Drivers in Suva.

the local curriculum development units developed appropriate teaching materials for children for use in schools. These are being tested in eight elementary schools. The net result of all these activities is that there is now active and effective road safety materials development and road safety teaching in Fijian schools, and this will have long-term benefits for the safety of young children in the country.

- 7 Driver Training and Testing. In this sector the main improvements implemented were as follows:
 - introduction of new oral questionnaires with a preset pass mark;
 - introduction of standardized licensing test scores and test routes; and
 - development of comprehensive manuals for all aspects of driver licensing, including licensing of driving schools and instructors.

Plate 7:
Roadside spot checks of roadworthiness.



It also included monitoring, periodic reporting, and analysis of all driver examination results, development of a revised road code consistent with a revised traffic legislation, and preliminary work with the driving schools industry on improving professional standards and the development of a standard curriculum.

During the Project, all existing driver examiners were given

training on the new manual and procedures, and, in addition, the specialist advisor worked closely with the local specialists in developing a defensive driving course suitable for Fiji. A Defensive Driving Instructor Course was also developed and a large number of Fijian instructors was trained. The course has been institutionalized and is now available from the Fiji National Training Council, which has a pool of about 20 fully trained defensive driver instructors from which the Council will be able to draw to conduct courses in the future.

- 8 Vehicle Inspection and Roadworthiness. In comparison with the other sectors, not as much progress has been made in this sector, largely because of the question over the mechanical competence of the existing staff engaged in vehicle inspections. Nevertheless, new inspection procedures have been developed that provide a structured approach to the inspection of any vehicle and the establishment and documentation of pass/fail criteria. All examiners have been trained in these procedures and comprehensive reference and policy manuals have also been developed. Acknowledging the general poor condition of infrastructure, the Fijian Government has embarked on a capital investment program to upgrade these facilities. Advice has also been given on the possibility of introducing testing by private operators regulated by the Department of Road Transport. Guidance has been provided on the policy, technical standards, and administrative procedures that may be necessary. In order to reduce the likelihood of unroadworthy vehicles using the road network, vehicles and equipment were purchased for the Department of Road Transport to use for on-road enforcement of vehicle roadworthiness. The vehicle inspectors, working in harmony with the police, were also trained in carrying out roadside spot checks and inspections of vehicles so enforcement exercises would become part of the routine in Fiji. These are now taking place regularly.
- 9 Emergency Medical Services. The absence of emergency medical services to help road accident victims was a cause for concern. The Project included some

specialist advice in reviewing the existing provision of emergency medical services by voluntary agencies, the fire service, and the hospitals, and the development of pilot programs to try to improve the situation. A pilot scheme has been devised, partially drawing upon voluntary funding of St. John Ambulance and partly with some assistance from the Government to try to develop a pilot emergency medical system for the Suva area. If this is successful it can be extended to other major towns and eventually along the national road network.

5 MONITORING AND EVALUATION

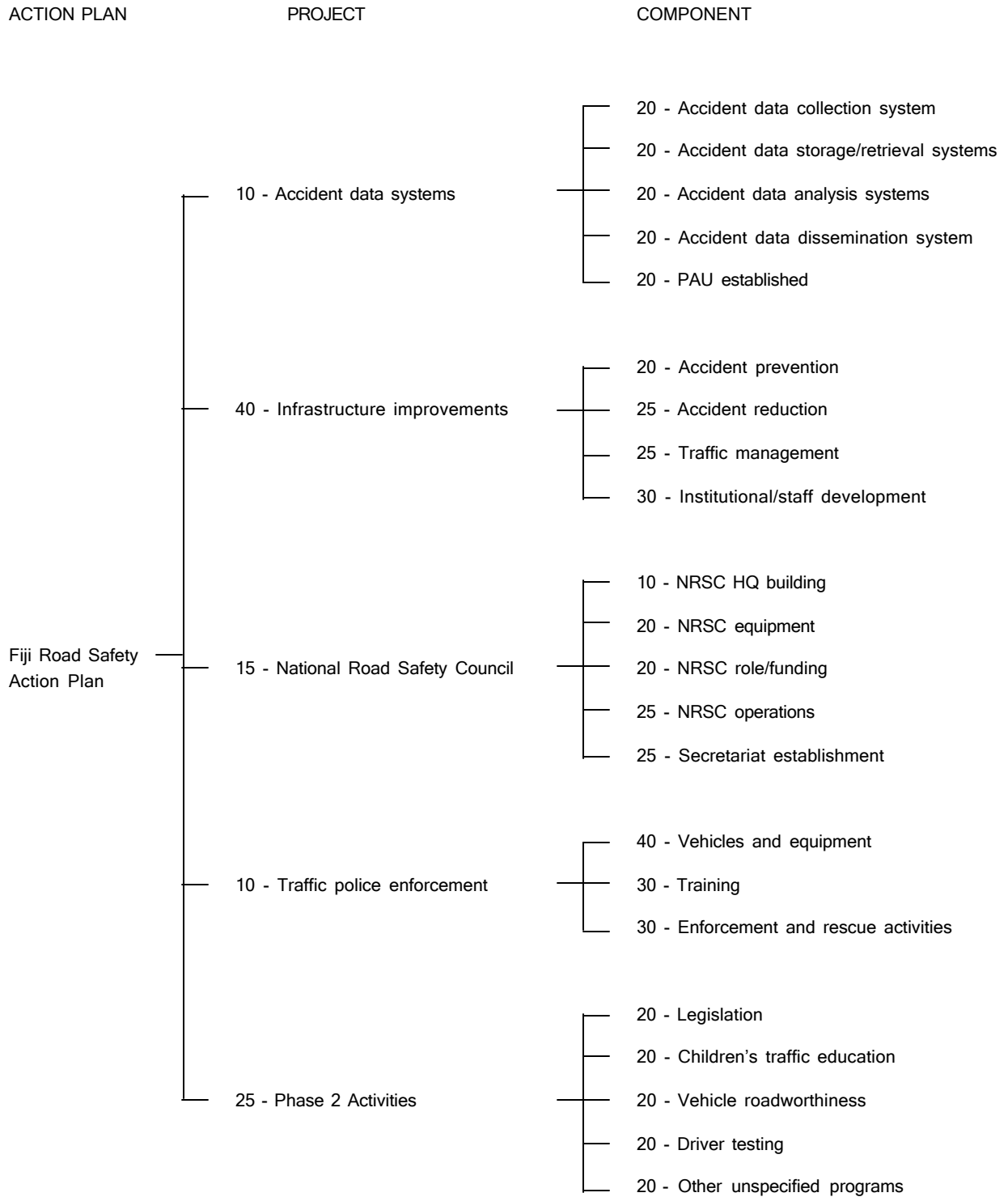
There are often serious problems in monitoring the effectiveness of the aid-funded projects, especially on the nonquantifiable areas, such as to whether institutional impact has occurred or whether the developmental objectives have been attained. This Project was monitored using the disaggregated effectiveness evaluation (DEE) technique, which is particularly appropriate for monitoring the effectiveness of aid-funded projects and for assessing achievement of objectives. The Project was monitored quarterly by the Government and the results were fed back to the aid agencies and to the safety advisor for action as necessary. The whole action plan was originally expected to be implemented by December 1995, but because of some temporary budgeting problems within the Public Works Department, some of the work had to be rescheduled. This was particularly so with respect to the infrastructure improvements, the black

spot improvements, and some of the route action plans, which had to be postponed until the following budget year. As a consequence, the progress achieved with respect to the originally stated developmental objectives in each sector by March 1996 were as follows:

- 1 accident data system: 100 percent;
- 2 infrastructure (implementation still ongoing): 80 percent;
- 3 Road Safety Council: 100 percent;
- 4 traffic police enforcement: 90 percent;
- 5 traffic legislation: 83 percent;
- 6 traffic education: 84 percent;
- 7 vehicle roadworthiness testing: 100 percent;
- 8 driver testing and training: 76 percent; and
- 9 emergency medical services (implementation still ongoing): 60 percent.

It must be noted that the above percentages are a measurement of achievement of the developmental objectives and institutional impact of the project. In most aid-funded projects, achievement of even 50 percent of the stated objectives would be considered quite successful. Achievement of 80-90 percent of the stated objectives after three to four years is a significant achievement. This Project, therefore, has been extremely successful in building up the capability of local institutions to tackle road safety problems and has resulted in much enhanced road safety activity being undertaken in Fiji. Although the primary focus of this Action Plan was institution building, the Plan has already improved road safety and created safer roads. Road accident deaths have fallen by about 20 percent in comparison to the 1991 figure (the year before the Action Plan commenced). Further decreases in the number of deaths are expected as the benefits of the Action Plan begin to be realized by the Fiji Government.

APPENDIX C

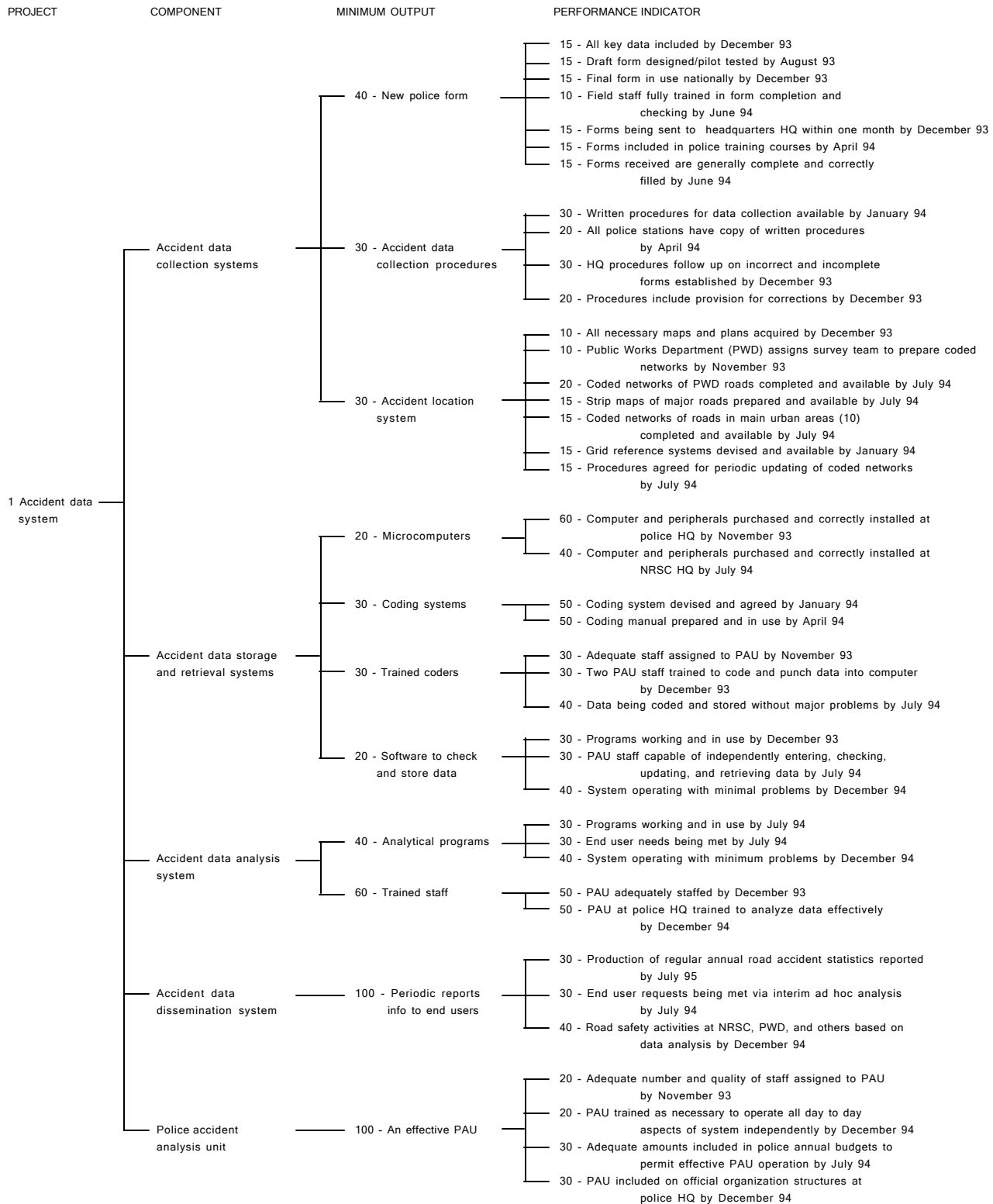


ACTION PLAN DEVELOPMENTAL OBJECTIVES

Institutional strengthening and development of key institutions and individuals in Fiji in order to enhance their capability to develop, implement, and oversee improvements in road safety and traffic management nationwide.

Figure 1: Fiji Road Safety Action Plan

APPENDIX C



PROJECT DEVELOPMENT OBJECTIVE

An effective accident data system, operated by Fijian police personnel that permits the scale, nature, and characteristics of the accident problem to be properly defined so that appropriate remedial measures can be developed by relevant agencies to reduce the numbers of injuries and deaths on Fiji roads.

Figure 2: Project 1 – Accident Data System

APPENDIX C

PROJECT	COMPONENT	MINIMUM OUTPUT	PERFORMANCE INDICATOR
2 Infrastructure improvements	20 - Accident prevention	30 - Safe design standards	60 - Design standards reviewed from safety perspective by May 94 40 - Additional safety details agreed and incorporated into design standards by October 94
		30 - Safety-conscious design and planning of roads	10 - At least two seminars held in Fiji on safety-conscious design and planning issues by December 94 30 - Safety audit system and procedures devised and drafted by September 94 30 - Safety audit system agreed and implemented in PWD by March 95 30 - Effective development control and access control procedures agreed and implemented by July 95
		40 - Upgrade of safety aspects at potentially dangerous locations of existing roads	30 - Draft road marking/road signing plans devised by PWD for selected sections of Queens Road/Kings Road by February 94 30 - Draft plans reviewed and finalized by May 94 40 - Comprehensive road marking and road sign schemes developed and implemented on Queens Road/Kings Road by August 94
		20 - Effective and accurate accident location systems	30 - Placement/replacement of kilometer posts or culvert markers to provide accurate system of location reference by February 94 40 - Development of strip maps and coded network accident location systems for main urban and rural networks by July 94 30 - Accident location system, strip maps, and coded network meet all needs of police accident data system by April 94
	25 - Accident reduction	30 - Accident black spot improvements	20 - Accident black spots identified for inclusion in demonstration project by February 94 20 - Demonstration project sites in use for practical training of PWD Road Safety Unit (RSU) and Divisional Road Engineers (DREs) by April 95 10 - Three accident black spots improved by end-April 94 15 - Total of 26 accident black spots improved by end-December 94 15 - Total of 50 accident black spots improved by end-December 95 20 - DREs and municipality staff designing and implementing required improvements with assistance from RSU by June 94
		30 - Route action plans (RAP)	20 - Three RAPs devised and implemented by end-April 94 40 - Total of 13 RAPs devised and implemented by end-December 94 40 - Total of 30 RAPs devised and implemented by end-December 95
		20 - Mass action plans	20 - Potential problem areas for mass action plans agreed by February 94 20 - Three sites improved by April 94 30 - Total of 16 sites improved by December 94 30 - Total of 30 sites improved by December 95
		50 - Preliminary TM schemes for major urban areas	60 - Rolling program of outline TM schemes being devised in consultation with municipalities for nine towns by July 95 40 - Municipal councils introduced through seminars to more safety-conscious planning, design, and operation of town roads by December 94
	25 - Traffic management (TM)	50 - TM circulation improvements in three large towns and six smaller towns	20 - Four TM schemes implemented by December 94 30 - Total of nine TM schemes implemented by December 95 30 - Hierarchical circulatory systems being established in each town as each TM scheme is implemented by December 94 20 - Town councils active in maintaining agreed road hierarchy in each TM scheme and controlling access and land use developments to ensure safe and smooth flow of traffic by December 95
		30 - Appropriately trained and resourced PWD road safety unit (RSU)	20 - Three appropriately qualified staff recruited and assigned full time to a PWD Road Safety Unit by December 93 20 - RSU staff trained (via practical demonstration projects) in how to carry out safety improvement schemes by August 95 15 - RSU staff capable of in-depth undertaking development and implementation of black spot, route action, and mass action plans by August 95 15 - RSU staff capable of in-depth providing appropriate advice to DREs and municipalities on TM issues by November 95 15 - RSU included in organizational structure of Roads Division by December 94 15 - Adequate resources being assigned annually within Roads Department budgets to cover RSU operations by December 95
	30 - Institutional and staff development	- Domestic training	25 - Municipal officials and decision makers in nine towns aware of basic TM issues and seeking PWD advice by August 95 25 - Nine town councils trying to establish and maintain road hierarchy and to improve safety in their towns by September 95 25 - Improved land use and development planning occurring in nine municipalities by August 95 25 - Reduced incidents of congestion and traffic circulation problems in the nine towns advised by RSU by December 95
		20 - Appropriately aware municipal officials	25 - Practical training provided for RSU staff via demonstration projects by August 95 25 - Periodic seminars being held for RSU staff, DREs and municipal officials on road safety and TM by July 94 25 - Advice and inputs provided to relevant local diploma courses to encourage teaching of road safety and TM issues by July 95 25 - Relevant local planning and engineering courses include teaching of safety-conscious planning and design of roads by December 95
25 - Domestic training		20 - Potential overseas courses assessed by December 93 20 - All three RSU staff to have successfully completed at least one short traffic engineering course by December 95 20 - At least two RSU members to have completed a short traffic engineering course by August 95 20 - RSU staff confident, knowledgeable, and able to advise DREs and municipalities on road safety and TM issues by July 95 20 - RSU staff trained overseas under Fiji Road Upgrading Project required to stay in RSU until at least three years after the course completion by June 95	
25 - Overseas training			

PROJECT DEVELOPMENT OBJECTIVE

Implementation of a systematic program of accident prevention and reduction to improve hazardous locations on urban and rural roads, to improve traffic circulation in towns, to introduce safety-conscious road planning and design practices in Fiji, and to enhance the knowledge, capacity, and capability of a small team at PWD HQ to carry out and continue such work independently by the project end.

Figure 3: Project 2 – Infrastructure Improvements

APPENDIX C

PROJECT	COMPONENT	MINIMUM OUTPUT	PERFORMANCE INDICATOR
3 NRSC	10 - NRSC building	100 - NRSC HQ readily accessible	20 - Suitable building acquired and transported to Valelevu by May 93
			20 - Site permits future expansion of HQ to accommodate training facilities by May 93
	20 - NRSC equipment	20 - NRSC secretariat vehicle	20 - HQ readily accessible to major target groups by May 93
			40 - Building fully operational and in use for NRSC activities by July 94
			50 - Secretariat vehicle acquired by November 93
			50 - Vehicle in regular use for secretariat activities from November 93
	20 - NRSC equipment	20 - Publicity/propaganda vehicles	30 - One publicity vehicle acquired and fully equipped by November 93
			30 - Vehicle in continuous use for publicity and education by January 94
		20 - Training and educational equipment	40 - Two additional vehicles acquired, equipped, and fully in use by July 94
			20 - Appropriate equipment agreed for each vehicle by October 93
	20 - NRSC equipment	20 - Office furniture and equipment	40 - Equipment purchased and fitted to each vehicle and/or available at HS by July 94
			40 - Equipment acquired provides three fully mobile exhibition and publicity facilities by July 94
20 - NRSC role and funding	20 - Security, storage, and replacement	40 - Office equipment and furniture for NRSC HQ agreed on by October 93	
		60 - Equipment purchased, installed and in use by August 94	
	20 - Government funds/grant	30 - All valuable NRSC equipment kept in secure locked area by August 94	
		40 - All equipment insured where appropriate and kept well-maintained by July 94	
20 - NRSC role and funding	40 - Insurance industry funding	30 - Vehicles/equipment being depreciated in an accounts and provision being made for eventual replacement by December 94	
		25 - Annual grant payable by Transport Department by March 94	
	40 - Private fundraising and sponsorship	35 - Annual grant being paid fully and on time by January 95	
		40 - Government grant to about 10 percent of total funding each year by July 95	
25 - NRSC operations	40 - Fully operational for major urban areas	25 - Insurance industry providing a sum per compulsorily insured vehicle (based on previous year) by February 94	
		25 - Insurance contributions paid in quarterly installments from 1 January 94	
	40 - Fully operational/active DRSC-based activities	25 - Annual income from insurance industry to comprise about 65 percent of total NRSC annual income by December 94	
		25 - Initial insurance contribution to be paid by February and to operate as a "float"	
	20 - Mobile exhibitions and publicity	50 - NRSC to be producing about 25 percent of its income from private fundraising and sponsorship by July 95	
		50 - NRSC active in organizing sponsors by December 93	
25 - NRSC secretariat establishment	100 - Statutory responsibility, resources, and power to improve road safety	20 - NRSC HQ fully equipped and operational by July 94	
		20 - NRSC secretariat active in supporting NRSC, divisional road safety committees (DRSCs) activities, and implementing NRSC decisions by July 94	
		20 - NRSC executive committee, NRSC full council and subcommittee operating in accord with council rules by July 94	
		20 - NRSC developing five-year national programme for implementation via member organizations by December 94	
25 - NRSC secretariat establishment	100 - Statutory responsibility, resources, and power to improve road safety	20 - Five-year rolling program with annual action plans being implemented nationally under NRSC by December 95	
		25 - Three DRSCs established by February 94	
		25 - DRSCs receiving annual funding (paid quarterly) from NRSC for local activities by July 94	
		25 - Membership on DRSCs reflects representation on NRSC by December 94	
25 - NRSC secretariat establishment	100 - Statutory responsibility, resources, and power to improve road safety	25 - DRSCs preparing/submitting annual program of activities for partial funding by NRSC by April 94	
		25 - Each of the three NRSC mobile/display vehicles have individual annual programs of activity planned and approved by NRSC by December 94	
		25 - All three mobiles in frequent and regular use throughout Vetu Levu and periodically in Vanue Levu by December 94	
		25 - Vehicle seconded out to DRSCs for local activities by December 94	
25 - NRSC secretariat establishment	100 - Statutory responsibility, resources, and power to improve road safety	25 - All three vehicles in continuous use to raise public awareness of safety issues by December 94	
		20 - Cabinet approval of Road Safety Action Plan (including NRSC) by June 93	
		20 - Legislation on duties, functions, funding, etc., of NRSC agreed and prepared by end-January 94	
		20 - Legislation passed by Parliament by end-March 94	
25 - NRSC secretariat establishment	100 - Statutory responsibility, resources, and power to improve road safety	20 - NRSC established and inaugural setting held by end-April 94	
		20 - Insurance contribution (based on 1992 number of compulsory third party policies) paid into designated NRSC bank account by February 94	

PROJECT DEVELOPMENT OBJECTIVE

The development of effective coordinating mechanisms at national and local level to encourage a multidisciplinary approach to road safety which will lead to the development and successful implementation of a Comprehensive National Road Safety Plan and Strategy.

Figure 4: Project 3 – National Road Safety Council

APPENDIX C

PROJECT	COMPONENT	MINIMUM OUTPUT	PERFORMANCE INDICATOR
4 Traffic police enforcement	40 - Vehicles and equipment	At least six four-wheel drive (4WD) patrol vehicles in use for enforcement	<ul style="list-style-type: none"> 25 - Specifications agreed by July 93 25 - Suitable 4WD vehicles purchased by December 93 25 - Vehicles fitted with radios and in full operation by January 94 25 - Police annual budget includes adequate funds for operations and maintenance by June 94
		At least three Hiace (or similar) vans in use as accident investigation vehicles	<ul style="list-style-type: none"> 25 - Specifications agreed by July 93 25 - Three suitable vehicles purchased by December 93 25 - Vehicles fitted with radios, accident investigation, and rescue equipment by June 94 25 - Vehicles deployed effectively by December 94
		At least six radar devices in use for speed enforcement	<ul style="list-style-type: none"> 30 - Specifications agreed with police by July 93 30 - Six suitable devices acquired by December 93 40 - Devices in regular use for speed enforcement by June 94
		At least ten roadside and one evidential alcohol testing devices in regular use for drink-driving enforcement	<ul style="list-style-type: none"> 30 - Specifications agreed with police by July 93 30 - Suitable roadside and evidential devices acquired by December 93 40 - Devices in regular use for drunk-driving enforcement by January 94
		All highway patrol vehicles fitted with safety and rescue equipment	<ul style="list-style-type: none"> 30 - Specifications agreed by July 93 30 - Rescue and safety equipment acquired by December 93 40 - Equipment deployed and in regular use by July 94
	30 - Training	Highway Patrol enforcement personnel trained in equipment use and maintenance	<ul style="list-style-type: none"> 25 - Sufficient number and caliber of staff assigned to Highway Patrol by December 93 25 - Highway Patrol personnel familiar with equipment by July 94 25 - Highway patrols using equipment correctly in day-to-day activity by December 94 25 - Police experiencing few problems with equipment or prosecutions by December 94
		Highway Patrol supervisory staff trained in enforcement	<ul style="list-style-type: none"> 50 - Supervisory staff given theoretical/ practical training by December 94 50 - Effective tactics in regular use by December 94
		Highway Patrol officers trained in resource deployment strategies	<ul style="list-style-type: none"> 50 - Highway Patrol officers trained in resource deployment strategies by December 94 50 - Effective deployment strategies in regular use by December 94
		Fiji Police College assisted to develop traffic courses	<ul style="list-style-type: none"> 30 - College trainer nominated to understudy enforcement specialist by December 93 40 - Police trainer attends courses/assists enforcement advisor in training highway patrol personnel by July 94 30 - Guidelines for police instructor prepared by December 94
		Increased police enforcement along sealed road network	<ul style="list-style-type: none"> 50 - Increased incidence of drivers prosecuted for moving offenses by December 94 50 - Reduced incidence of drivers contravening traffic laws by December 94
	30 - Enforcement and rescue activities	Faster rescue and assistance to injured victims of road accidents	<ul style="list-style-type: none"> 30 - Easier extraction of trapped victims by July 94 30 - First aid assistance available from highway patrols by December 94 40 - Reduced delay time in victims reaching hospital by December 94
		Improved accident investigation activity	<ul style="list-style-type: none"> 60 - Accident investigation vehicles deployed and effectively used by June 94 40 - Accident vehicle crews trained in relevant activities by December 94
		Increased police presence to deter dangerous driving behavior	<ul style="list-style-type: none"> 20 - Regular highway patrols on sealed network by December 94 20 - Vehicles and equipment in daily use for enforcement by July 94 20 - Vehicles and equipment being used optimally by December 94 20 - Observable improvement in driver behavior at existing black spots by December 94 20 - Public support and appreciation of Highway Patrol work by December 94

PROJECT DEVELOPMENT OBJECTIVE

Training of Highway Patrol personnel and the establishment of effective Highway Patrol activities along the major roads in order to provide quicker assistance to road accident victims and to deter dangerous driving.

Figure 5: Project 4 – Traffic Police Enforcement

APPENDIX C

PROJECT	COMPONENT	MINIMUM OUTPUT	PERFORMANCE INDICATOR
4 Phase 2 activities	20 - Legislation	Modern traffic and safety 70 - legislation to reflect current and future needs in Fiji	20 - Existing legislation reviewed and areas of deficiency or inadequacy defined by July 94
			20 - Key ministries and organizations consulted and invited to give views by October 94
			20 - NRSC legislation subcommittee coordinates comments from key agencies and preparation of new draft by December 94
			20 - New traffic law drafted and approved by July 95
		30 - Convenient mechanism for periodic updating and review	20 - New traffic act is supportive of safety and working without undue problems by December 95
			50 - Legislation designed as umbrella act giving only broad structure by December 95
	20 - Children's traffic education	30 - Increased safety for preschool children	50 - Education/publicity program developed by NRSC for parents and carers of preschool children by December 94
			50 - Appropriate channels being used to distribute materials by August 95
		Increased safety for school 40 - age children attending school	25 - Ministry of Education (MoE) primary school curriculum developers assisted to develop suitable teacher guides by July 95
			25 - MoE curriculum developers assisted to develop teaching aids, worksheets for elementary schools, etc., by December 95
		Increased safety for school 30 - age children not attending school	25 - Accident data being used to identify target groups and issued by December 94
			25 - Traffic safety being taught in all Fiji elementary schools as an integral part of school syllabus by December 95
20 - Vehicle road worthiness	100 - Improved roadworthiness of vehicles on Fiji roads	60 - Health education, social welfare, agricultural extensions, etc., being used regularly as conduits to reach such children by December 95	
20 - Driver testing	100 - An effective driver test such that only safe competent drivers pass	40 - Radio/TV/magazines being used to reach such children by December 95	
20 - Other unspecified areas	100 - Improvements as necessary to enhance safety	20 - Existing roadworthiness testing reviewed and areas of deficiency identified by December 94	
		30 - Improvement devised and implemented under aegis of NRSC by December 95	
		20 - Frequent spot checks by police task force teams by December 94	
		30 - Incidence of defective vehicles as a cause of accidents reduced by December 95	
		20 - Existing driver testing reviewed and areas of deficiency identified by December 94	
		30 - Improvement devised and implemented under aegis of NRSC by December 95	
		20 - Frequent spot checks by police task force teams by December 94	
		30 - Incidence of defective driving as a cause of accidents reduced by December 95	
		50 - Most urgent areas for improvement identified by December 94	
		50 - Improvements implemented or initiated by December 95	

PROJECT DEVELOPMENT OBJECTIVE

Implementation of the most urgent improvements in legislation, children's traffic education, and vehicle roadworthiness inspection, driver testing and other areas as required in order to improve the road safety environment in Fiji.

Figure 6: Project 5 – Activities (Projects 5-8)

Road Safety Guidelines

for the Asian and Pacific Region

Appendix **D**

COMPARATIVE STATISTICS



Asian Development Bank

COMPARATIVE STATISTICS

Appendix D

This Appendix contains basic statistics on Asian and Pacific countries to enable intercountry comparisons. The data are based on the database of road safety information that is to be established at the United Nations Economic and Social Commission for Asia and the Pacific (UN/ESCAP) in Bangkok, Thailand.

		KILOMETERS OF ROAD																
		1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994		
EAST/CENTRAL ASIA																EAST/CENTRAL ASIA		
<i>PRC ('000,000s)</i>		<i>888.25</i>	<i>897.462</i>	<i>906.963</i>	<i>915.079</i>	<i>926.746</i>	<i>942.395</i>	<i>962.769</i>	<i>982.243</i>	<i>999.553</i>	<i>1,014.34</i>	<i>1,028.35</i>	<i>1,041.14</i>	<i>1,056.71</i>	-	-	<i>PRC ('000,000s)</i>	
Hong Kong, China		1,162	1,182	1,217	1,244	1,279	1,323	1,350	1,395	1,434	1,465	1,484	1,529	1,559	-	-	Hong Kong, China	
DPR Korea		-	-	-	-	-	-	-	-	-	-	20,000	-	-	-	-	DPR Korea	
Republic of Korea		46,951	50,336	53,936	54,600	51,004	52,264	53,654	54,689	55,778	56,481	56,715	58,088	58,847	61,294	73,834	Republic of Korea	
Macao		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Macao	
Mongolia		-	-	-	-	-	-	-	-	-	-	-	-	49,200	-	-	Mongolia	
Taipei, China		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Taipei, China	
SOUTHEAST ASIA																SOUTHEAST ASIA		
Brunei		1,483	1,561	1,622	1,654	1,733	1,770	1,861	1,994	2,024	2,199	-	-	-	-	-	Brunei	
Cambodia		-	-	-	-	-	-	-	-	-	-	-	-	14,800	-	-	Cambodia	
Indonesia		142,314	154,181	165,138	184,648	194,944	207,237	214,033	222,924	250,314	266,326	283,516	-	-	-	-	Indonesia	
Lao PDR		-	-	13,971	-	-	12,983	-	-	-	-	-	-	13,298	-	-	Lao PDR	
Malaysia		28,721	31,406	35,864	37,409	38,503	39,702	39,915	39,339	52,606	52,695	53,986	61,649	-	-	-	Malaysia	
Myanmar		22,740	22,883	22,981	23,068	23,202	23,298	23,387	23,463	23,490	23,981	27,305	30,629	-	-	-	Myanmar	
Philippines		151,919	153,528	154,473	155,671	157,139	161,709	162,325	157,810	157,253	159,059	160,380	160,633	-	-	-	Philippines	
Singapore		2,356	2,483	2,533	2,568	2,597	2,645	2,686	2,760	2,810	2,836	2,882	2,924	2,967	2,989	-	Singapore	
Thailand		28,151	30,016	31,001	33,148	34,702	36,235	37,724	39,369	41,794	44,409	45,445	45,650	46,712	-	-	Thailand	
Viet Nam		81,136	-	-	-	-	85,136	85,681	86,327	86,643	87,267	87,507	105,061	105,500	-	-	Viet Nam	
SOUTH ASIA																SOUTH ASIA		
Afghanistan		-	18,852	18,974	19,010	-	-	-	-	-	18,000	-	-	-	-	-	Afghanistan	
Bangladesh		5,691	6,591	7,432	7,997	9,387	10,374	11,185	11,815	12,321	12,960	13,700	-	14,500	-	-	Bangladesh	
Bhutan		-	-	-	-	-	-	-	2,254	-	-	-	-	-	-	-	Bhutan	
<i>India ('000s)</i>		<i>1,190</i>	<i>1,231.1</i>	<i>1,530.3</i>	<i>1,579.1</i>	<i>1,627.5</i>	<i>1,686.9</i>	<i>1,726.1</i>	<i>1,780.6</i>	<i>1,843.4</i>	<i>1,905</i>	<i>1,970</i>	<i>2,037</i>	-	-	-	<i>India ('000s)</i>	
Iran		95,800	76,500	64,200	90,000	-	135,882	-	-	-	-	-	-	-	-	-	Iran	
Maldives		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Maldives	
Nepal		4,940	5,021	5,270	5,546	5,717	5,925	6,039	6,306	6,611	6,611	7,036	7,401	7,400	-	-	Nepal	
Pakistan		40,143	42,535	44,669	46,848	49,457	53,020	59,630	107,611	111,152	114,669	118,122	121,485	124,773	128,057	131,433	Pakistan	
Sri Lanka		24,643	24,564	24,752	25,466	25,466	25,494	25,634	25,688	25,749	25,952	-	-	-	-	-	Sri Lanka	
CENTRAL ASIAN REPS																CENTRAL ASIAN REPS		
Armenia		-	-	-	-	-	-	-	-	-	-	-	-	-	8,096	-	Armenia	
Azerbaijan		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Azerbaijan	
Kazakhstan		-	-	-	-	-	-	-	-	-	-	-	-	87,841	-	87,523	Kazakhstan	
Kyrgyz Republic		-	-	-	-	-	-	-	-	-	-	19,100	-	-	-	-	Kyrgyz Republic	
Russian Federation		-	-	-	-	-	-	-	-	-	-	-	-	-	934,000	-	Russian Federation	
Tajikistan		-	-	-	-	-	-	-	-	-	13,400	-	-	-	-	-	Tajikistan	
Turkmenistan		-	-	-	-	-	-	-	-	-	-	-	13,400	-	-	-	Turkmenistan	
Uzbekistan		-	-	-	-	-	-	-	-	-	39,800	-	-	-	-	-	Uzbekistan	
PACIFIC COUNTRIES																PACIFIC COUNTRIES		
American Samoa		-	-	-	-	-	-	-	-	-	-	-	-	-	-	55	American Samoa	
Cmn. Nth. Mariana Is.		-	-	-	-	-	-	-	-	-	-	-	-	-	-	59	Cmn. Nth. Mariana Is.	
Cook Islands		-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	Cook Islands	
Fiji		-	-	-	-	-	-	-	-	-	-	4,822	4,777	-	-	755	Fiji	
French Polynesia		-	-	-	-	-	-	-	-	-	-	-	-	-	-	217	French Polynesia	
Guam		-	-	-	-	-	-	-	-	-	-	-	-	-	-	145	Guam	
Kiribati		-	-	-	-	-	-	-	-	-	-	-	-	-	-	78	Kiribati	
Marshall Islands		-	-	-	-	-	-	-	-	-	-	-	-	-	-	54	Marshall Islands	
Micronesia, Fed. States. of		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Fed. States. of Micronesia	
Samoa		-	-	-	-	-	-	-	-	-	-	1,800	-	-	-	-	Samoa	
Tonga		-	-	-	-	-	-	-	-	-	305	-	-	-	-	-	Tonga	
Vanuatu		-	-	-	-	-	1,353	-	-	-	-	-	1,130	-	-	-	Vanuatu	
DEVELOPED NATIONS																DEVELOPED NATIONS		
Australia		810,900	-	-	801,600	804,800	-	808,500	805,400	-	810,300	-	-	-	-	-	Australia	
<i>Japan ('000s)</i>		<i>1,114</i>	<i>1,118</i>	<i>1,123</i>	<i>1,123</i>	<i>1,125</i>	<i>1,128</i>	<i>1,127</i>	<i>1,099</i>	<i>1,104</i>	<i>1,110</i>	<i>1,115</i>	<i>1,120</i>	<i>1,125</i>	<i>1,131</i>	<i>1,136</i>	<i>Japan ('000s)</i>	
New Zealand		-	-	93,000	93,000	93,000	93,000	93,000	-	93,000	-	-	-	-	-	-	New Zealand	

Notes: Sources: Statistical year books for each country;
UN/ESCAP Statistical Yearbook for the Asian and the Pacific Region.

For presentational purposes, large values have been expressed as thousands. In these cases, entries are shown in italics.

APPENDIX D

POPULATION BY YEAR ('000s)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	
EAST/CENTRAL ASIA																EAST/CENTRAL ASIA
<i>PRC ('000,000s)</i>	<i>996.134</i>	<i>1,010.1</i>	<i>1,024.58</i>	<i>1,039.552</i>	<i>1,054.911</i>	<i>1,070.575</i>	<i>1,086.552</i>	<i>1,102.877</i>	<i>1,119.509</i>	<i>1,136.397</i>	<i>1,153.47</i>	<i>1,170.697</i>	<i>1,187.997</i>	<i>1,205.181</i>	<i>1,222.017</i>	<i>PRC ('000,000s)</i>
Hong Kong, China	5,039	5,144	5,237	5,318	5,300	5,456	5,516	5,570	5,618	5,664	5,709	5,755	5,800	5,845	5,890	Hong Kong, China
DPR Korea	18,260	18,581	18,901	19,221	19,549	19,888	20,239	20,602	20,978	21,368	21,771	22,188	22,618	23,055	23,491	DPR Korea
Republic of Korea	38,124	38,667	39,203	39,737	40,271	40,806	41,345	41,886	42,416	42,917	43,377	43,791	44,163	44,507	44,842	Republic of Korea
Macao	320	-	-	330	360	390	420	430	440	450	479	-	-	-	424	Macao
Mongolia	1,664	1,709	1,758	1,807	1,858	1,909	1,963	2,018	2,073	2,131	2,190	2,249	2,310	2,371	2,434	Mongolia
Taipei, China	17,800	18,100	18,400	18,700	19,010	19,260	19,460	19,680	19,900	20,120	20,340	20,560	20,780	21,000	21,220	Taipei, China
SOUTHEAST ASIA																SOUTHEAST ASIA
Brunei	194	200	206	213	220	226	233	239	245	251	257	263	269	276	282	Brunei
Cambodia	6,498	6,553	6,692	6,890	7,111	7,327	7,530	7,729	7,926	8,127	8,337	8,553	8,774	8,996	9,222	Cambodia
<i>Indonesia ('000,000s)</i>	<i>150.957</i>	<i>154.143</i>	<i>157.384</i>	<i>160.672</i>	<i>163.992</i>	<i>167.332</i>	<i>170.687</i>	<i>174.059</i>	<i>177.448</i>	<i>180.856</i>	<i>184.283</i>	<i>187.723</i>	<i>191.17</i>	<i>194.616</i>	<i>198.055</i>	<i>Indonesia ('000,000s)</i>
Lao PDR	3,206	3,262	3,330	3,409	3,497	3,595	3,702	3,818	3,942	4,070	4,202	4,335	4,469	4,606	4,742	Lao PDR
Malaysia	13,764	14,112	14,479	14,863	15,264	15,678	16,104	16,542	16,989	17,440	17,892	18,343	18,792	19,239	19,683	Malaysia
Myanmar	33,821	34,529	35,252	35,994	36,757	37,544	38,355	39,191	40,050	40,928	41,824	42,738	43,668	44,613	45,573	Myanmar
Philippines	48,684	49,949	51,263	52,620	54,001	55,395	56,798	58,211	59,627	61,038	62,437	63,819	65,186	66,543	67,898	Philippines
Singapore	2,414	2,443	2,471	2,500	2,528	2,558	2,588	2,618	2,649	2,679	2,710	2,740	2,768	2,798	2,825	Singapore
Thailand	46,718	47,695	48,636	49,533	50,384	51,187	51,938	52,640	53,315	53,988	54,677	55,393	56,128	56,869	57,586	Thailand
Viet Nam	53,711	54,904	56,116	57,351	58,611	59,898	61,214	62,556	63,921	65,299	66,688	68,083	69,485	70,902	72,342	Viet Nam
SOUTH ASIA																SOUTH ASIA
Afghanistan	16,063	15,815	15,441	15,027	14,690	14,519	14,528	14,706	15,085	15,698	16,556	17,688	19,062	20,547	21,968	Afghanistan
Bangladesh	88,221	90,701	93,223	95,777	9,832	100,861	103,384	105,898	108,429	111,014	113,684	116,444	119,288	122,21	125,201	Bangladesh
Bhutan	1,242	1,267	1,294	1,322	1,350	1,380	1,409	1,440	1,471	1,504	1,539	1,574	1,611	1,650	1,689	Bhutan
<i>India ('000,000s)</i>	<i>688.856</i>	<i>703.75</i>	<i>719.151</i>	<i>734.907</i>	<i>750.793</i>	<i>766.651</i>	<i>782.423</i>	<i>798.161</i>	<i>813.954</i>	<i>829.932</i>	<i>846.191</i>	<i>862.745</i>	<i>879.549</i>	<i>896.567</i>	<i>913.747</i>	<i>India ('000,000s)</i>
Iran	39,254	40,945	42,832	44,849	46,901	48,916	50,882	52,811	54,690	56,508	58,267	59,948	61,565	63,180	64,878	Iran
Maldives	158	163	168	173	178	183	189	195	201	207	214	220	227	234	241	Maldives
Nepal	14,858	15,285	15,730	16,191	16,661	17,136	17,615	18,097	18,584	19,075	19,571	20,072	20,576	21,086	21,601	Nepal
<i>Pakistan ('000,000s)</i>	<i>85.299</i>	<i>88.007</i>	<i>90.944</i>	<i>94.073</i>	<i>97.332</i>	<i>100.676</i>	<i>104.103</i>	<i>107.611</i>	<i>111.152</i>	<i>114.669</i>	<i>118.122</i>	<i>121.485</i>	<i>124.857</i>	<i>128.257</i>	<i>131.433</i>	<i>Pakistan ('000,000s)</i>
Sri Lanka	14,819	15,078	15,342	15,606	15,864	16,110	16,345	16,568	16,784	16,999	17,218	17,440	17,666	17,893	18,121	Sri Lanka
CENTRAL ASIAN REPS																CENTRAL ASIAN REPS
Armenia	3,067	-	-	3,243	3,292	3,339	3,387	3,435	3,453	3,482	3,545	3,612	3,686	4,000	-	Armenia
Azerbaijan	6,165	-	-	6,453	6,560	6,661	6,760	6,866	6,980	7,085	7,153	-	7,392	-	-	Azerbaijan
Kazakhstan	14,939	-	-	15,550	15,745	15,935	16,136	16,167	16,362	16,537	16,670	16,806	17,038	-	-	Kazakhstan
Kyrgyz Republic	3,630	-	-	3,857	3,937	4,014	4,093	4,173	4,250	4,327	4,395	4,453	4,493	4,500	-	Kyrgyz Republic
<i>Russian Fed. ('000,000s)</i>	<i>138.936</i>	-	-	-	-	-	-	-	-	-	-	<i>148.164</i>	-	-	-	<i>Russian Fed. ('000,000s)</i>
Tajikistan	3,967	-	-	4,298	4,428	4,567	4,719	4,874	5,027	5,175	5,303	5,465	5,562	-	-	Tajikistan
Turkmenistan	2,860	-	-	3,080	3,154	3,230	3,316	3,408	3,495	3,578	3,670	3,852	-	4,307	-	Turkmenistan
Uzbekistan	15,957	-	-	17,269	17,736	18,231	18,757	19,298	19,737	20,114	20,531	-	-	21,700	-	Uzbekistan
PACIFIC COUNTRIES																PACIFIC COUNTRIES
American Samoa	32	-	-	34	35	36	36	37	37	38	39	-	39	-	55	American Samoa
Cmn. Nth. Mariana Is.	-	-	17.3	17.9	19.6	27.7	30.5	33.5	36.9	40.6	44.6	49.1	54	-	59	Cmn. Nth. Mariana Is.
Cook Islands	19	-	17.4	17.4	17	17.2	17.1	17.1	17.7	17.9	18.4	18.5	18.7	-	19	Cook Islands
Fiji	662	675	689	699	708	713	713	717	721	726	732	740	747	755	755	Fiji
French Polynesia	147	-	-	165	170	174	179	183	188	193	206	207	207	-	217	French Polynesia
Guam	108	-	-	116	120	120	124	126	129	131	134	136	139	-	145	Guam
Kiribati	58	-	59.5	61	62.4	64.1	65.6	67.1	68.6	70.2	71.8	73.5	75.2	-	78	Kiribati
Marshall Islands	-	-	32.8	33.8	34.8	37.8	39.4	41.1	42.7	44.5	46.2	48	50	-	54	Marshall Islands
Micronesia, Fed. States of	-	-	82.4	85.3	88.2	94.1	96.8	99.6	102.5	105.4	108.5	111.6	114.8	-	107	Micronesia, Fed. States of
Nauru	7.9	8.1	8.4	8.1	8.2	8.5	8.7	8.9	9.1	9.2	9.4	9.6	9.8	-	10	Nauru
New Caledonia	142	-	-	145	148	151	154	160	164	167	170	173	177	-	182	New Caledonia
Niue	3.3	3.2	3.2	3	2.8	2.5	2.4	2.3	2.2	2.2	2.2	2.2	2.2	-	2	Niue
Palau	-	-	13.5	13.6	13.7	13.7	14	14.3	14.6	14.9	15.2	15.6	15.9	-	16	Palau
Papua New Guinea	3,086	-	3,110	3,185	3,261	3,337	3,407	3,482	3,557	3,630	3,699	3,772	3,847	-	4,246	Papua New Guinea
Samoa	157	-	157	158	159	159	160	161	162	163	164	165	165	-	163	Samoa
Solomon Islands	231	-	244	252	261	273	283	293	304	312	320	328	337	-	368	Solomon Islands
Tonga	96	-	94.7	95.5	96.4	97.3	94.5	95	95.6	96.1	96.6	97.1	97.4	-	99	Tonga
Tuvalu	6	-	7.8	8	8.1	8.2	8.3	8.5	8.6	8.8	9	9.1	9.3	-	10	Tuvalu
Vanuatu	118	-	120	123.8	127	129.3	132.7	136.3	139.6	143.4	146.8	150.9	154.5	-	165	Vanuatu
DEVELOPED NATIONS																DEVELOPED NATIONS
Australia	14,695	14,901	15,105	15,310	15,527	15,759	16,008	16,272	16,545	16,819	17,086	17,344	17,596	17,843	18,089	Australia
<i>Japan ('000,000s)</i>	<i>116.807</i>	<i>117.711</i>	<i>118.573</i>	<i>119.388</i>	<i>120.145</i>	<i>120.837</i>	<i>121.462</i>	<i>122.03</i>	<i>122.553</i>	<i>123.051</i>	<i>123.537</i>	<i>124.018</i>	<i>124.491</i>	<i>124.959</i>	<i>125.422</i>	<i>Japan ('000,000s)</i>
New Zealand	3,113	3,130	3,154	3,184	3,217	3,247	3,276	3,305	3,334	3,362	3,392	3,423	3,455	3,488	3,520	New Zealand

Notes: Source: UN/ESCAP population statistics.

For presentational purposes, large values have been expressed as millions rather than thousands. In these cases, entries are shown in italics.

APPENDIX D

TOTAL NUMBER OF REGISTERED MOTOR VEHICLES ('000s)⁽¹⁾

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	
EAST/CENTRAL ASIA																
PRC	3,803.4	4,436.8	5,061.7	5,677.3	6,616.4	8,360.5	9,316.15	10,610.3	11,902	13,185.3	14,762.7	16,576.6	19,450.3	23,316.4	27,355.8	EAST/CENTRAL ASIA
Hong Kong, China	299.395	330.309	339.567	327.803	311.87	300.561	300.995	322.29	347.402	376.153	405.407	437.769	471.221	503.509	-	PRC
DPR Korea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Hong Kong, China
Republic of Korea	744.218	847.689	1,057.332	1,314.119	1,717.616	1,824.869	2,121.779	2,535.562	3,102.289	3,847.982	4,780.051	5,830.826	6,993.547	8,210.353	-	DPR Korea
Macao	15.4	18	19.6	21.2	22.1	22.3	24.3	24.5	26.3	28.7	31.1	-	-	-	-	Republic of Korea
Mongolia	-	-	-	-	-	-	-	37.422	35.642	36.001	-	-	39.737	-	-	Macao
Taipei,China	4,653.406	5,346.723	6,034.634	6,662.722	7,331.925	7,939.918	8,687.538	7,692.467	8,919.399	10,138.909	11,418.22	12,565.357	13,847.097	14,846.61	-	Mongolia
SOUTHEAST ASIA																
Brunei	54.507	62.047	67.804	77.68	86.772	95.425	100.888	105.973	110.747	118.113	126.556	134.902	144.159	-	-	SOUTHEAST ASIA
Cambodia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Brunei
Indonesia	3,871.558	4,603.965	5,346.995	5,875.75	6,460.425	6,827.317	7,321.77	7,426.174	7,765.949	8,243.982	8,850.729	9,230.741	9,922.737	10,237.069	11,373.217	Cambodia
Lao PDR	25.293	-	-	-	-	40.866	45.104	50.009	55.825	85.015	84.099	95.836	104.039	113.899	134.334	Indonesia
Malaysia	2,323.574	2,855.177	3,187.07	3,545.784	3,898.895	4,190.195	4,406.087	4,544.446	4,727.127	5,014.176	5,400.934	5,847.034	6,245.991	6,627	-	Lao PDR
Myanmar	88	105.987	111.863	119.816	128.448	138.191	143.888	137.703	146.549	160.906	175.24	195.221	218.053	251.676	-	Malaysia
Philippines	1,111.433	1,006.03	1,087.18	1,200.803	1,165.557	1,120.172	1,185.632	1,176.753	1,210.483	1,431.464	-	1,715.366	1,879.563	2,125.115	-	Myanmar
Singapore	371.341	401.805	440.276	476.288	491.322	486.76	473.659	471.124	491.808	520.537	542.352	559.304	557.584	584.322	-	Philippines
Thailand	1,710.5	2,201.53	2,601.31	3,015.72	3,352.97	3,403.85	4,044.39	4,956.11	5,799.81	6,505.02	7,541.81	8,427.09	9,557.89	11,062.45	-	Singapore
Viet Nam	154.362	-	-	-	-	-	-	-	159.08	1,166.515	1,455.658	1,779.082	2,308.067	3,019.497	3,395.923	Thailand
SOUTH ASIA																
Afghanistan	-	79.7	73	70.9	59	57.5	55.9	55.8	56	56	56	55	75	-	-	SOUTH ASIA
Bangladesh	86.356	95.152	98.936	131.498	136.161	145.804	156.468	167.493	270.86	251.765	274.499	296.317	314.009	349.631	201.541	Afghanistan
Bhutan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Bangladesh
India	4,990.06	5,782.99	6,466.07	7,480.7	8,460.93	9,539.17	10,563.8	12,517.7	14,717	16,557.1	18,704.9	21,374	23,507	25,299	-	Bhutan
Iran	211.386	158.393	128.973	193.65	221.607	204.9	91	96.91	50.478	45.364	48.884	41,138.197	4,318.3	4,488.008	4,640.694	India
Maldives	1.062	1.186	1.425	1.048	1.299	1.615	0.779	0.886	1.056	1.275	1.436	-	-	-	-	Iran
Nepal ⁽²⁾	-	1.606	1.034	1.105	2.524	2.693	2.121	1.879	2.375	3.245	3.501	-	-	130	150	Islamic Republic of Iran
Pakistan	1,109.814	1,019.551	1,352.962	1,502.305	1,673.433	1,924.347	2,037.435	2,187.245	2,363.064	2,585.906	2,766.44	2,602.241	2,773.295	3,257.942	-	Maldives
Sri Lanka	278.055	307.75	339.924	371.966	406.017	452.39	484.964	497.523	534.449	612.402	710.4	781.296	864.518	-	-	Nepal ⁽²⁾
CENTRAL ASIAN REPS																
Armenia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	CENTRAL ASIAN REPS
Azerbaijan	-	-	-	-	-	-	-	431.068	442.094	463.165	466.389	468.375	-	-	-	Armenia
Kazakhstan	-	-	-	-	-	-	-	-	-	-	-	-	1266.8	-	-	Azerbaijan
Kyrgyz Republic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Kazakhstan
Russian Federation	-	-	-	-	-	20,900	21,400	22,400	23,200	23,600	23,300	24,200	24,500	27,200	-	Kyrgyz Republic
Tajikistan	-	-	-	-	-	-	-	-	-	-	17.6	18	18.2	13.8	-	Russian Federation
Turkmenistan	170.963	185.283	193.106	207.169	214.897	235.794	253.16	264.197	269.117	279.104	286.225	280.002	293.392	296.417	-	Tajikistan
Uzbekistan	-	-	-	-	-	-	-	-	-	-	1,641.81	1,900.592	1,915.15	1,868.953	-	Turkmenistan
PACIFIC COUNTRIES																
American Samoa	2.7	3.5	3.1	3.3	3.8	4.5	-	-	-	-	-	-	5.3	-	-	PACIFIC COUNTRIES
Cmn. Nth. Mariana Is.	-	-	-	-	-	-	-	-	-	-	-	-	-	17.8	-	American Samoa
Cook Islands	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Cmn. Nth. Mariana Is.
Fiji	38.9	43.1	46	53.7	56.8	59.7	65.6	67.1	68.2	75.3	80.1	83.9	87.8	90.1	-	Cook Islands
French Polynesia	-	-	-	-	-	-	-	-	-	-	-	-	-	55	-	Fiji
Guam	54.2	55.9	82.7	58.7	72.9	77	70	75.4	72.9	84.8	-	-	102	-	-	French Polynesia
Kiribati	-	-	-	-	-	-	-	-	-	1.5	-	-	-	-	-	Guam
Marshall Islands	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Kiribati
Micronesia, Fed. States of	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Marshall Islands
Nauru	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Micronesia, Fed. States of
New Caledonia	-	54.3	56.8	58.2	60.4	60.1	63.1	65	68	72	73	-	75	-	-	Nauru
Niue	0.261	0.291	0.427	-	-	-	-	-	-	-	-	-	-	-	-	New Caledonia
Republic of Palau	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Niue
Papua New Guinea	45.6	47.1	44.7	43.4	46.4	42.6	43.6	43.2	-	-	-	-	41.3	-	-	Republic of Palau
Samoa	4	5.3	3.93	4.02	4.5	4.805	4.208	4.689	4.69	5.85	-	6.8	7.3	9.9	-	Papua New Guinea
Solomon Islands	0.975	1.148	2.785	-	-	3.425	3.676	-	-	-	-	-	-	-	-	Samoa
Tonga	2.429	2.047	2.628	4.376	2.274	3.394	3.976	4.761	6.223	4.681	5.854	7.364	-	10.359	-	Solomon Islands
Tuvalu	-	-	-	-	-	0.041	0.049	0.055	0.07	0.084	-	-	-	-	-	Tonga
Vanuatu	3.2	3.713	3.984	4.018	4.024	4.487	5.691	5.518	5.706	5.81	5.796	-	7.5	-	-	Tuvalu
DEVELOPED NATIONS																
Australia	7,731.6	8,086.3	8,521.8	8,763	9,002.4	9,286.2	9,459.5	9,543	9,715.3	9,977	10,256	10,060	10,423	10,613	-	DEVELOPED NATIONS
Japan	49,244	52,103	55,297	58,548	61,253	63,684	65,942	67,812	70,100	72,399	74,500	76,168	77,395	78,476	79,722	Australia
New Zealand	1,692.40	1,748.83	1,790.16	1,830.10	1,886.75	1,919.95	2,022.09	1,905.78	1,786.04	1,832.04	1,886.73	1,927.67	1,965.74	-	-	Japan
Sources: UN/ESCAP Questionnaire, 1980-1993. Country statistical yearbooks, various years. UN/ESCAP Statistical Yearbook for Asia and the Pacific.																
Notes: (1) The sum of motorcycles, cars, trucks, and buses, and other motorized vehicles from the previous tables, or data from other sources giving total motor vehicles. (2) Nepal: figures available up to 1990 are abnormally low. 1993 and 1994 values from an alternative source.																

APPENDIX D

		TOTAL ROAD FATALITIES																	
		1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	Death (1)		
EAST/CENTRAL ASIA																		EAST/CENTRAL ASIA	
PRC	21,818	22,499	22,164	23,944	25,251	40,906	50,063	53,439	54,814	50,441	49,243	53,204	58,723	63,508	66,362	7	PRC		
Hong Kong, China	402	474	453	340	322	309	310	280	301	346	321	315	328	351	-	30	Hong Kong, China		
DPR Korea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	DPR Korea		
Republic of Korea	5,608	5,804	6,110	6,834	7,468	7,552	7,702	7,206	11,563	12,603	12,325	13,429	11,640	10,402	10,087	3	Republic of Korea		
Macao	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Macao		
Mongolia	-	-	-	-	-	-	182	221	209	245	351	374	-	-	-	-	Mongolia		
Taipei,China	4,039	3,840	3,596	3,392	3,540	3,564	4,139	4,373	4,190	3,930	3,910	3,305	2,717	2,349	-	1	Taipei,China		
SOUTHEAST ASIA																	SOUTHEAST ASIA		
Brunei	40	51	63	47	45	40	42	43	39	35	47	56	47	-	-	-	Brunei		
Cambodia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Cambodia		
Indonesia	11,456	11,105	10,805	10,862	10,881	10,283	10,692	10,809	10,456	10,726	10,887	10,610	9,819	10,038	11,004	1	Indonesia		
Lao PDR	-	-	-	-	-	80	92	79	65	-	99	105	152	166	200	-	Lao PDR		
Malaysia	2,568	2,769	3,266	3,523	2,951	2,379	2,358	2,240	2,354	3,090	3,345	3,514	3,263	3,651	-	30	Malaysia		
Myanmar	-	-	-	-	-	-	441	466	276	420	553	695	620	924	-	1	Myanmar		
Philippines	-	-	1,492	1,348	1,119	1,085	1,093	835	934	-	1,425	-	-	871	1,027	1	Philippines		
Singapore	259	275	307	298	327	265	251	205	226	232	236	243	240	258	254	30	Singapore		
Thailand	4,493	2,760	3,090	2,472	2,904	2,788	2,086	3,991	8,651	6,563	5,765	8,595	8,184	9,496	-	1	Thailand		
Viet Nam	2,221	2,982	1,938	2,050	2,017	2,048	2,278	2,516	2,477	2,112	2,087	2,395	2,069	3,940	4,533	7	Viet Nam		
SOUTH ASIA																	SOUTH ASIA		
Afghanistan	791	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Afghanistan		
Bangladesh	-	928	1,009	1,116	1,242	1,463	1,169	1,156	1,367	1,867	1,844	1,982	2,317	1,487	1,597	7	Bangladesh		
Bhutan	-	-	-	-	-	-	13	16	4	17	7	3	6	5	-	30	Bhutan		
India	24,600	27,333	30,067	32,800	35,100	39,200	40,000	44,400	46,600	50,700	54,100	56,500	59,400	-	-	30	India		
Iran	-	-	-	2,831	-	-	-	-	-	-	-	-	2,343	2,957	2,840	-	Iran		
Maldives	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Maldives		
Nepal	-	245	260	327	354	409	445	439	387	368	528	530	641	632	941	30	Nepal		
Pakistan	3,795	4,127	4,143	3,564	4,139	4,714	5,009	5,125	5,251	5,174	4,790	4,916	5,182	-	-	30	Pakistan		
Sri Lanka	1,106	1,247	1,257	1,365	1,310	1,311	1,286	1,226	1,386	1,596	1,795	1,271	1,343	1,599	-	30	Sri Lanka		
CENTRAL ASIAN REPS																	CENTRAL ASIAN REPS		
Armenia	394	379	370	461	430	429	412	404	399	725	721	633	519	318	-	-	Armenia		
Azerbaijan	891	954	853	832	825	819	998	974	1,088	1,090	1,264	1,281	1,265	1,152	-	7	Azerbaijan		
Kazakhstan	3,404	3,279	3,201	3,324	3,208	2,944	2,633	2,700	3,139	3,839	3,985	4,115	4,021	3,954	-	3	Kazakhstan		
Kyrgyz Republic	-	-	-	-	87	102	58	66	65	76	65	79	39	-	-	7	Kyrgyz Republic		
Russian Federation	-	-	-	-	-	-	-	-	-	-	35,366	37,522	36,471	37,120	-	7	Russian Federation		
Tajikistan	-	-	-	-	617	584	551	585	733	709	809	821	520	604	499	7	Tajikistan		
Turkmenistan	525	522	517	581	571	504	488	488	596	693	688	766	664	648	484	7	Turkmenistan		
Uzbekistan	2,477	2,436	2,449	2,594	2,590	2,440	2,418	2,462	2,654	2,930	3,166	3,184	2,688	2,153	2,032	7	Uzbekistan		
PACIFIC COUNTRIES																	PACIFIC COUNTRIES		
American Samoa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	American Samoa		
Cmn. Nth. Mariana Is.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Cmn. Nth. Mariana Is.		
Cook Islands	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Cook Islands		
Fiji	88	59	55	80	82	87	69	91	77	84	87	108	72	91	88	1 year	Fiji		
French Polynesia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	French Polynesia		
Guam	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Guam		
Kiribati	-	-	10	8	22	18	8	14	-	-	-	-	-	-	-	-	Kiribati		
Marshall Islands	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Marshall Islands		
Micronesia, Fed. States of	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Micronesia, Fed. States of		
Nauru	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Nauru		
New Caledonia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	New Caledonia		
Niue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Niue		
Republic of Palau	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Republic of Palau		
Papua New Guinea	-	295	253	264	274	277	274	316	347	329	299	305	290	-	-	1	Papua New Guinea		
Samoa	11	19	18	22	10	13	9	13	14	18	18	15	9	10	-	3	Samoa		
Solomon Islands	4	-	2	4	6	5	5	-	-	-	-	-	-	-	-	-	Solomon Islands		
Tonga	7	6	5	13	7	8	8	10	6	11	11	15	16	6	-	-	Tonga		
Tuvalu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Tuvalu		
Vanuatu	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Vanuatu		
DEVELOPED NATIONS																	DEVELOPED NATIONS		
Australia	3,272	3,321	3,252	2,755	2,822	2,941	2,888	2,772	2,887	2,801	2,331	2,113	1,974	1,953	-	30	Australia		
Japan	8,760	8,719	9,073	9,520	9,262	9,261	9,317	9,347	10,344	11,086	11,227	11,105	11,451	10,942	10,649	1	Japan		
New Zealand	599	669	673	644	669	747	766	796	727	761	730	651	647	600	-	30	New Zealand		

Sources: UN/ESCAP Questionnaire, 1980-1993.
Country statistical yearbooks, various years.
UN/ESCAP *Statistical Yearbook for the Asian and Pacific Region*.

Note: (1) The international definition of death due to a road accident is death within 30 days of the accident. However, not all countries use this definition. This column in the table gives the definition where known. The number of deaths shown are the actual published figures. They can be adjusted to represent standardized 30-day deaths using the following European Union factors, for purposes of comparative analysis:

1 day	+ 3 percent
3 days	+ 15 percent
6 days	+ 9 percent
7 days	+ 8 percent
1 year	+ 3 percent

APPENDIX D

Country Data for Most Recent Year

Subregion	Year	GNP (US\$ billion)	Population ('000s)	Road Accident Casualties			Motor Vehicles ('000s)			Fatalities per 10,000 motor vehs	Severity Index	Fatalities per 100,000 population	Motor Vehs per 1,000 population
				Fatalities	Injuries	Total	Total	2/3 wh	percent 2/3 wh				
NIEs			74,397	155,661	323,880	339,541	25,755	13,966	54	6.1	5	21.1	346
Hong Kong, China	1993	104.7	5,845	351	20,558	20,909	504	27	5	7.0	2	6.0	86
Republic of Korea	1993	338.1	44,507	11,962	293,634	305,596	8,210	1,936	24	14.6	4	26.9	184
Singapore	1994	65.8	2,825	254	6,751	7,005	586	125	21	4.3	4	9.0	207
Taipei,China	1994	-	21,220	3,094	2,937	6,031	16,455	11,878	72	1.9	51	14.6	775
CENTRAL ASIA			1,245,662	76,582	154,734	231,316	28,659	10,952	38	26.7	33	6.1	23
People' s Republic of China	1994	630.2	1,222,000	71,671	137,794	20,9465	27,356	10,938	40	26.2	34	5.9	22
Mongolia	1989	0.9	2,131	245	501	746	36	-	-	68.1	33	11.5	17
CENTRAL ASIAN REPUBLICS													
Kazakstan	1992	28.6	17,038	4,624	16,200	20,824	1,267	14	1	36.5	22	27.1	74
Kyrgyz Republic	1992	3.7	4,493	42	239	281	-	-	-	-	15	0.9	-
SOUTHEAST ASIA			419,373	44,123	117,303	161,426	36,039	23,515	65	12.2	27	10.5	86
Cambodia	1994	-	9,222	128	208	336	359	311	87	3.6	38	1.4	39
Indonesia	1994	167.6	198,055	14,305	18,002	32,307	11,373	7,788	68	12.6	44	7.2	57
Lao PDR	1994	1.5	4,742	200	3,479	3,679	134	109	81	14.9	5	4.2	28
Malaysia	1993	60.1	19,239	3,651	29,201	32,852	6,627	3,695	56	5.5	11	19.0	344
Myanmar	1993	-	44,613	1,201	-	-	252	69	27	47.7	-	2.7	6
Philippines	1988	37.7	59,627	1,214	10,783	11,997	1,210	281	23	10.0	10	2.0	20
Thailand	1994	129.9	57,586	19,729	43,541	63,270	12,940	8,248	64	15.2	31	34.3	225
Viet Nam	1994	13.8	70,902	4896	12,089	16,985	3,396	3,083	91	14.4	29	6.9	48
SOUTH ASIA			1,240,734	71,171	299,537	369,507	28,687	18,251	64	24.8	19	5.7	23
Afghanistan	1994	-	21,968	-	-	-	170	95	56	-	-	-	8
Bangladesh	1994	26.6	125,201	1,725	2,533	4,258	351	202	58	49.1	41	1.4	3
Bhutan	1992	0.3	1,611	6	14	20	14	5	36	4.3	30	0.4	9
India	1992	271.6	879,549	59,400	262,200	321,600	23,507	15,661	67	25.3	18	6.8	27
Maldives	1994	0.2	241	-	-	-	-	-	-	-	-	-	-
Nepal	1994	4.2	21,601	941	1,434	2,375	155	81	52	60.7	40	4.4	7
Pakistan	1993	53.3	128,057	6,299	14,753	21,052	3,258	1568	48	19.3	30	4.9	25
Sri Lanka	1993	10.7	17,893	1,599	18,603	20,202	980	570	58	16.3	8	8.9	55
PACIFIC COUNTRIES			5,551	502	3,500	4002	163	5	3	30.8	13	9.0	29
Cook Islands	1994	-	19	-	-	-	-	-	-	-	-	-	-
Fiji	1993	1.6	747	88	1,165	1,253	90	4	4	9.8	7	11.8	120
Kiribati	1987	0.5	67	14	132	146	-	-	-	-	10	20.9	-
Marshall Islands	1994	-	54	-	-	-	-	-	-	-	-	-	-
Micronesia, Fed. States of	1994	-	107	-	-	-	-	-	-	-	-	-	-
Papua New Guinea	1992	3.8	3,847	377	1,948	2,325	41	-	-	92.0	16	9.8	11
Samoa	1993	0.2	164	12	106	118	10	-	-	12.0	10	7.3	61
Solomon Islands	1986	0.3	283	5	84	89	4	-	-	12.5	6	1.8	14
Tonga	1993	0.2	98	6	65	71	10	1	10	6.0	8	6.1	102
Tuvalu	1994	-	10	-	-	-	-	-	-	-	-	-	-
Vanuatu	1992	0.2	155	-	-	-	8	-	-	-	-	-	52
DEVELOPED NATIONS			146,322	16,377	716,497	732,874	92,344	16,369	18	1.8	2	11.2	631
Australia	1993	310.0	17,843	1,953	21,473	23,426	10,613	292	3	1.8	8	10.9	595
Japan	1994	4,321.1	124,959	13,844	678,424	692,268	79,722	16,021	20	1.7	2	11.1	638
New Zealand	1994	46.6	3,520	580	16,600	17,180	2,009	56	3	2.9	3	16.5	571