

Research Project #1801C (The 50<sup>th</sup> Anniversary Strategic Project)

**International Comparison: Goal Setting for Road Traffic Safety and Traffic Culture**  
*International Comparative Study on Technologies, Systems and Culture related to Road Traffic Safety*

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- Tang, Keshuang (Professor, Tongji University, China)
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## ➤ Research Cooperators

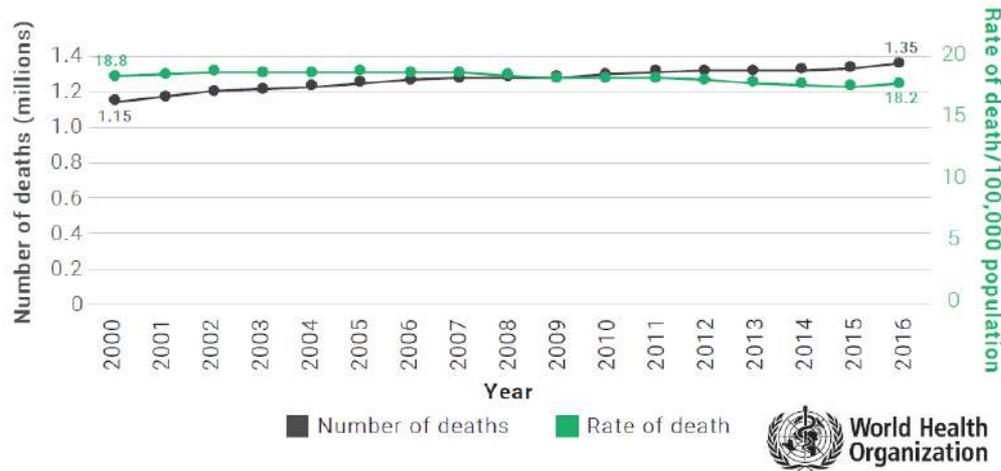
- Akandwanaho, Edwin (Doctoral Program Student, Nagoya University, from Uganda)
- Toquero, Ivy Kristine (Department of Public Works and Highways, Republic of the Philippines)

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- Wolfermann, Axel (Professor, Hochschule Darmstadt, University of Applied Sciences, Germany)
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# Road traffic deaths and target settings

- Number and rate of road traffic death per 100,000 population (WHO, 2018)



- 12 Voluntary Global Performance Targets for Road Safety Risk Factors and Service Delivery (November 2017)

<b>TARGET 1</b> <b>2020</b> <p>Target 1: By 2020, all countries establish a comprehensive multisectoral national road safety action plan with time-bound targets.</p>	<b>TARGET 2</b> <b>2030</b> <p>Target 2: By 2030, all countries accede to one or more of the core road safety-related UN legal instruments.</p>	<b>TARGET 3</b> <b>2030</b> <p>Target 3: By 2030, all new roads achieve technical standards for all road users that take into account road safety, or meet a three star rating or better.</p>	<b>TARGET 4</b> <b>2030</b> <p>Target 4: By 2030, more than 75% of travel on existing roads is on roads that meet technical standards for all road users that take into account road safety.</p>
<b>TARGET 5</b> <b>2030</b> <p>Target 5: By 2030, 100% of new (defined as produced, sold or imported) and used vehicles meet high quality safety standards, such as the recommended priority UN Regulations, Global Technical Regulations, or equivalent recognized national performance requirements.</p>	<b>TARGET 6</b> <b>2030</b> <p>Target 6: By 2030, halve the proportion of vehicles travelling over the posted speed limit and achieve a reduction in speed-related injuries and fatalities.</p>	<b>TARGET 7</b> <b>2030</b> <p>Target 7: By 2030, increase the proportion of motorcycle riders correctly using standard helmets to close to 100%.</p>	<b>TARGET 8</b> <b>2030</b> <p>Target 8: By 2030, increase the proportion of motor vehicle occupants using safety belts or standard child restraint systems to close to 100%.</p>
<b>TARGET 9</b> <b>2030</b> <p>Target 9: By 2030, halve the number of road traffic injuries and fatalities related to drivers using alcohol, and/or achieve a reduction in those related to other psychoactive substances.</p>	<b>TARGET 10</b> <b>2030</b> <p>Target 10: By 2030, all countries have national laws to restrict or prohibit the use of mobile phones while driving.</p>	<b>TARGET 11</b> <b>2030</b> <p>Target 11: By 2030, all countries to enact regulation for driving time and rest periods for professional drivers, and/or accede to international/regional regulation in this area.</p>	<b>TARGET 12</b> <b>2030</b> <p>Target 12: By 2030, all countries establish and achieve national targets in order to minimize the time interval between road traffic crash and the provision of first professional emergency care.</p>

- PILLAR 1: Road safety management
- PILLAR 2: Safer roads and mobility
- PILLAR 3: Safe vehicles
- PILLAR 4: Safe road users
- PILLAR 5: Post-crash response

- Road safety-related SDGs and targets

<p><b>SDG Goal 3: Ensure healthy lives and promote well-being for all at all ages</b></p> <p>Target 3.6: By 2020, halve the number of global deaths and injuries from road traffic accidents</p>	<p><b>SDG Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable</b></p> <p>Target 11.2: By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons</p>
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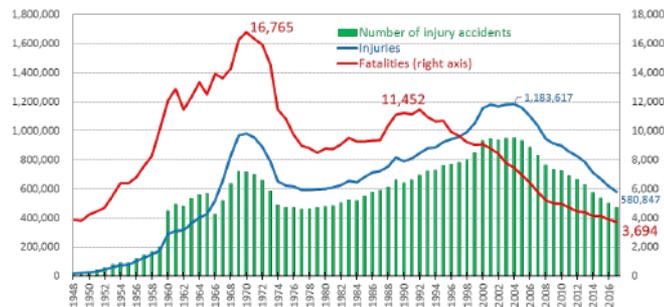
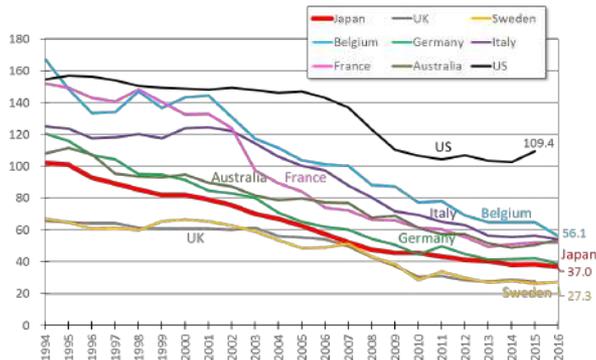
# Background and Objective

## ➤ The 50<sup>th</sup> Anniversary Strategic Project

- In order to realize safe traffic society, it is necessary for all countries around the world to continue cooperating to reduce the number of road traffic deaths.
- It is also **necessary to share information** about setting road traffic safety target values because they are different in different countries.
- To make IATSS international cooperation activities useful, it is necessary to **recognize the reasons for regional differences objectively**, and understand them systematically. In order to do so, this project sets the goal of **collecting, investigating and analyzing basic information**.
- Investigate and analyze the methods of establishing long-term or short- or mid-term targets and achievement plans of each country.

## ➤ Objectives of the Project 1801C

- We conduct **international comparative analysis focusing on technologies and systems related to road traffic safety, and cultural aspects in the background.**



# Research flow of the project

2016

Preliminary literature review

2017

Overseas site visits

- Interviews/workshops
- Road traffic survey
- Coordination for the questionnaire survey

Questionnaire survey on traffic safety culture in various countries

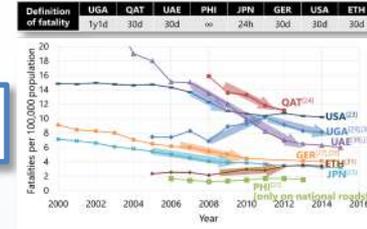
2018

Aggregation/modeling

Comparative analysis

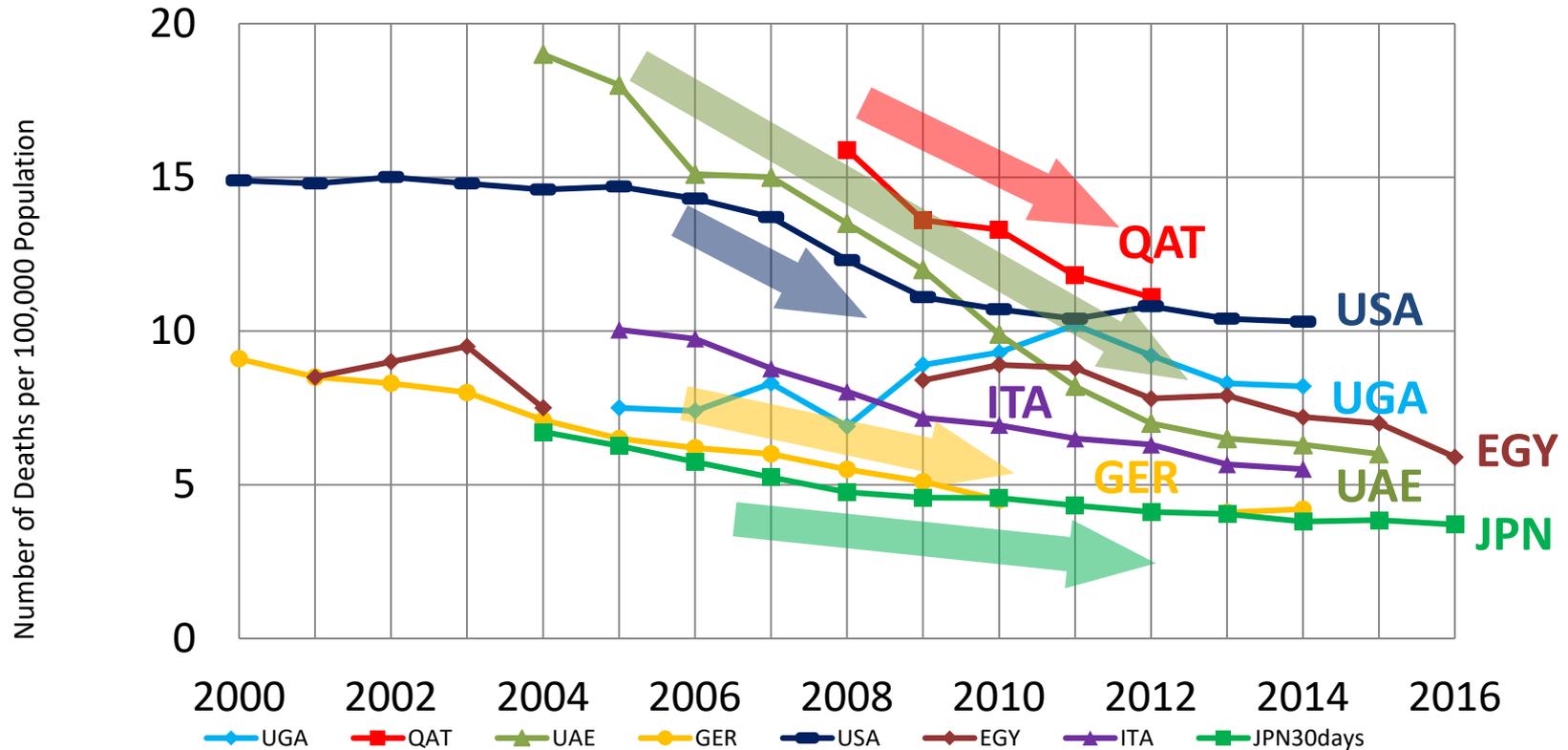
2019

Conclusions and proposals / International workshop



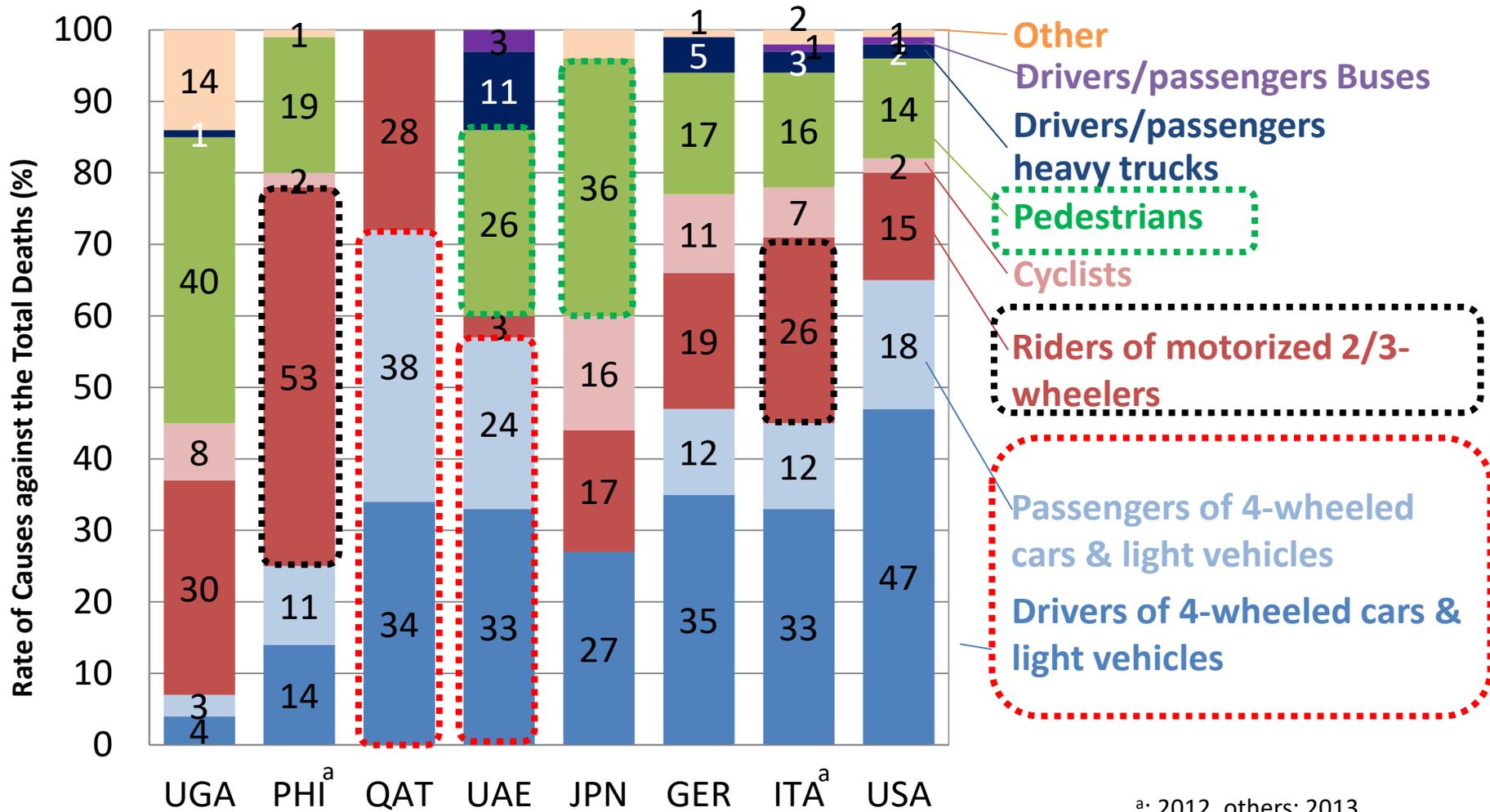
# Number of Road Traffic Deaths per 100,000 Population

Definition of fatality	UGA	QAT	UAE	EGY	JPN	GER	USA	ITA
	1y1d	30d	30d		30d	30d	30d	30d



- Developed Countries: Decreased → Tend to be settled
- Middle East: Rapidly decreased recently
- Developing Countries: Lack of reliable data

# Fatalities by road user type within 30 days



# Examples of Traffic Accident Reduction Target Settings

	Target	From	To	Interim Evaluation
JPN	Number of road traffic deaths: <2,500 (24h)	2016	2020	3532 (2018)
GER	Number of road traffic death: -40%	2011	2020	-4.7% (2014)
USA	Rate of road traffic deaths per 100 million miles traveled: 1.10 (2010) → 1.02	2012	2016	1.08 (2014)
ITA	Number of road traffic deaths: -50%	2010	2020	-18% (2014)
QAT	Number of road traffic deaths: 220 (2010)→ 130 Number of seriously injured individuals: 550 (2010)→ 300	2011	2020	Number of road traffic deaths: 204 (2012) Number of seriously injured individuals: 593 (2012)
	Rate of road traffic deaths: <17%	2013	2022	
UAE	Rate of road traffic deaths per 100,000 population: 6.5 (2013) → 3.0	2013	2021	5.99 (2015)
EGY	Number of road traffic deaths: -50% (-5%/year)	2011	2020	-12.4% (2011-2014)
PHI	Rate of traffic accidents: -50%	2011	2020	Number of road traffic deaths: -10.4% (2013) →Target year was changed from 2020 to 2022 (2017)

➤ Each country sets its own traffic accident reduction target

- Depending on the state of economic growth, technical level, traffic culture level, etc.???

# Overseas On-site Survey Overview (1/2)



Country	Qatar (Sep. 2016) 	UAE (Sep. 2016) 	Egypt (Sep. 2018) 
<b>City Visited</b>	<b>Doha</b>	<b>Dubai, Sharjah, Abu Dhabi</b>	<b>Cairo, Giza</b>
<b>Government Organizations</b>	Personnel from each government office participated in the workshop to exchange opinions.	Traffic and Patrol Directorate Abu Dhabi, Smart Traffic Center, Consultant TATWEER	General Authority for Roads, Bridges and Land Transport
<b>Universities/Research Institutions</b>	Qatar Univ. (held Workshop)	American University of Sharjah	Cairo University, Ain-shams University
<b>Emergency/Healthcare Facilities</b>	-	Dubai Corporation for Ambulance Services	-
<b>Driving Schools</b>	Karwa Driving School	Driving School	
<b>Automobile Registration/Inspection Organizations</b>	-	Vehicles and Drivers Licensing Department (registration for automobile inspection/ drivers license test center)	
<b>Traffic Flow Observation Survey</b>	Done	Done	-
<b>Driving Survey</b>	Done	Done	Done
<b>Coordination for Questionnaire Survey</b>	Done	Done	Done



# Overseas On-site Survey Overview (2/2)

Country	Philippines (Dec. 2016, Nov. 2017)	Italy (Oct. 2017)
City Visited	Makati, Manila 	Milan, Turin, Rome 
Government Organizations	<ul style="list-style-type: none"> <li>- Department of Public Works and Highways(DPWH),</li> <li>- Metro Manila Development Authority (MMDA)</li> <li>- Department of Transportation (DoTr, scheduled in Nov. 2017)</li> </ul> 	<ul style="list-style-type: none"> <li>- Milan Municipality Agency for mobility, environment, territory (AMAT-MI, Milano)</li> <li>- Lombardy Region (Lombardy), Directorate General for Infrastructure and Mobility, Directorate General for safety</li> <li>- Turin Municipality (Turin), Transport Councilor</li> <li>- Ministry of Infrastructure and Transport, Technical Department CCISS (Information Coordination Centre for Road Safety)</li> </ul>
Universities/ Research Institutions	NCTS, University of the Philippines, Diliman	<ul style="list-style-type: none"> <li>- Politecnico di Milano (Polytechnic University of Milan)</li> <li>- Politecnico di Torino (Polytechnic University of Turin)</li> </ul>
Emergency/ Healthcare Facilities	UP-Philippine General Hospital	-
Driving Schools	-	-
Automobile Registration/ Inspection Organizations	Done 	Done 
Traffic Flow Observation Survey	Done	Done
Driving Survey	Done 	Done  

# Questionnaire survey on attitude to traffic safety

## ➤ Measurement of People's Attitude and Sense of Value about Traffic Safety

- Individual Attributes (Frequency and purpose of driving, history of violations and accidents, nationality, income, etc.)
- Awareness of traffic safety issues
- Tolerance for traffic violations and dangerous driving
- Pros and cons of rules and regulations



## ➤ Implementation Methods

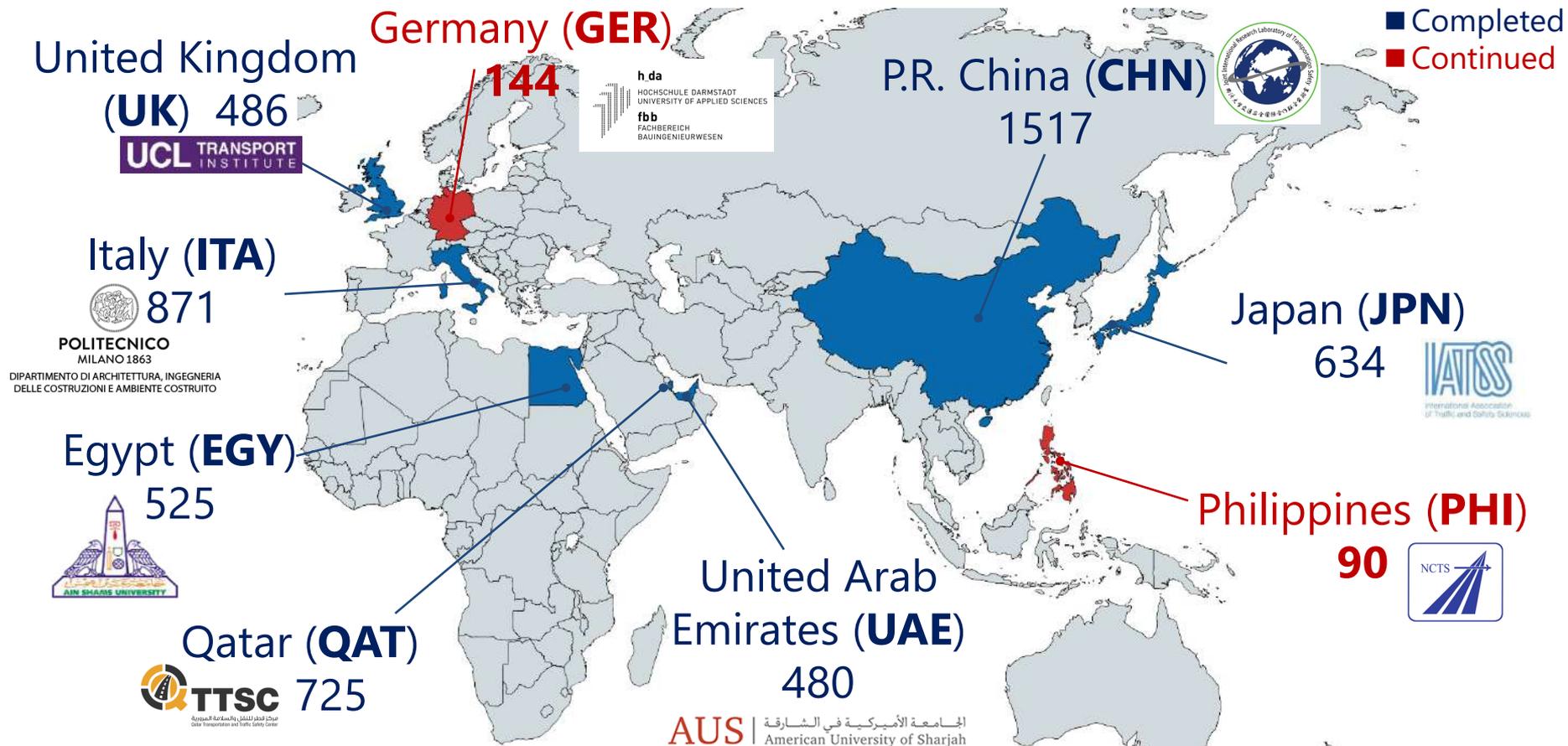
- Mainly online questionnaire (partially paper-based questionnaire)
- Provided in 6 languages at the moment: Japanese/English/Italian/Arabic/Chinese/German
- Sought participants via on-site research cooperators



online questionnaire (Arabic)

# State of the Implementation of the Questionnaire Survey

- Questionnaire survey was conducted mainly online in 9 countries.
  - Completed in 7 countries, continued in 2 countries (As of February 2019)
    - Started in Germany on January 28, 2019 and is being continued.



\*Numbers shown above are the number of responses (Number of effective responses after data cleansing in the countries that completed the survey. **(As of 18:00 on February 18, 2019)**)

➤ (1) to (4) were excluded from the target samples of totaling.

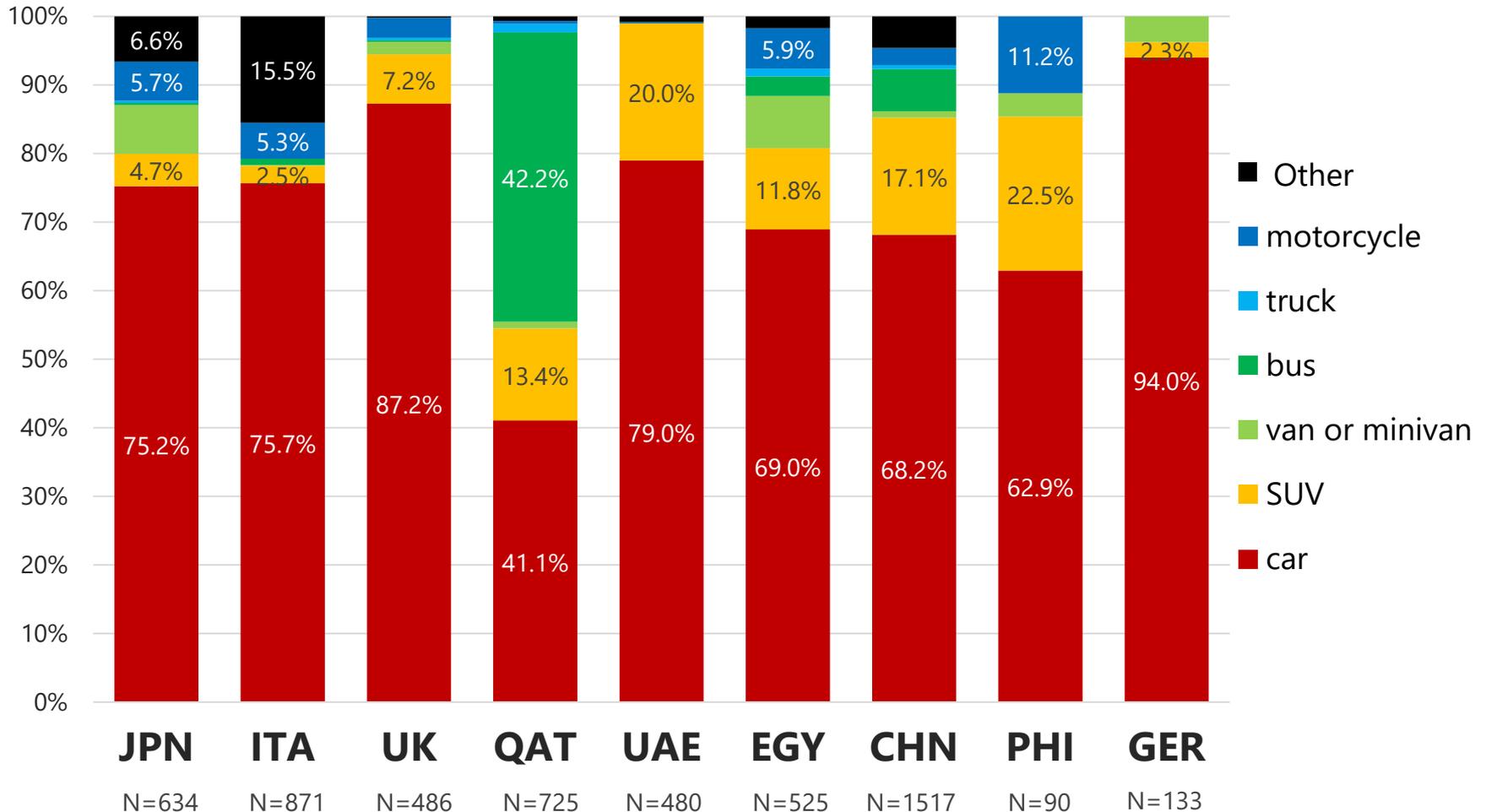
Target Country	Abbr.	Method	Number of Collected Responses	(1) Overlapped/ No response	(2) Outside the Target Country	(3) Content of Response	(4) Other*	Number of Target Samples for Totaling
Japan	JPN	Web	655	0	1	20	0	634
Italy	ITA	Web	882	0	8	3	0	871
Qatar	QAT	Web	268	0	19	5	2	242
		Paper-based (Dallah)	146	118	—	0	0	28
		Paper-based (Karwa)	1457	1001	—	0	1	455
UAE	UAE	Web	516	0	28	5	3	480
England	UK	Web	501	0	11	4	0	486
The Philippines	PHI	Web	90	No data cleansing				90
Egypt	EGY	Paper-based	562	37	—	0	0	525
China	CHN	Web	1556	0	33	4	2	1517
Germany	GER	Web	144	11	No data cleansing			133
<b>Total</b>								<b>5461</b>

\* Excluding samples of individuals aged younger than 18 (QAT: 3, UAE: 3, CHN: 2), or without driver licenses (GER: 11).

# Q1: Type of vehicle driven most often

➤ Majority of respondents used passenger cars. QAT had many vocational drivers (buses).

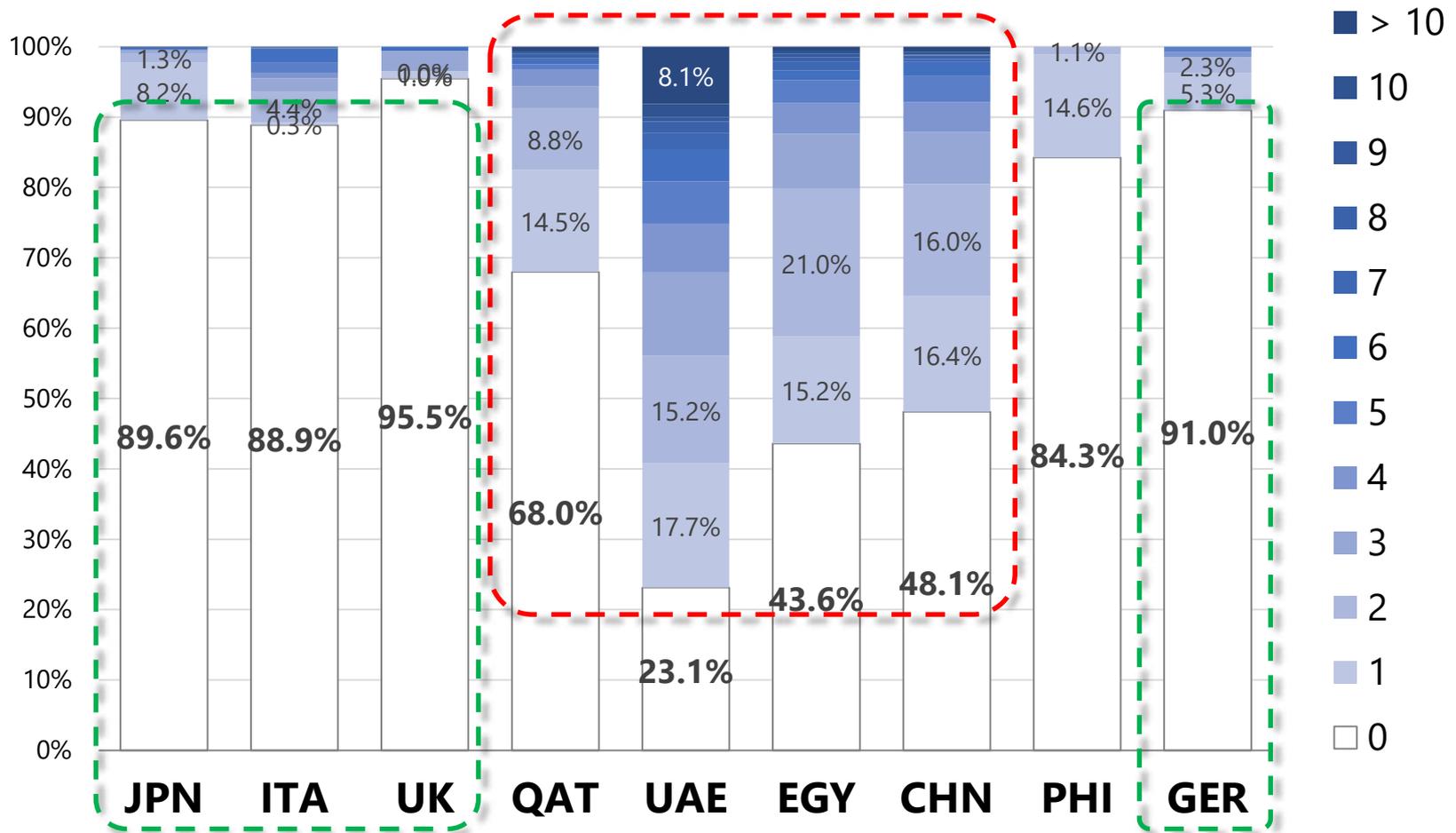
\*Others for ITA and JPN include individuals using bicycles and public transportation.



\* Size of samples is the same for all countries.

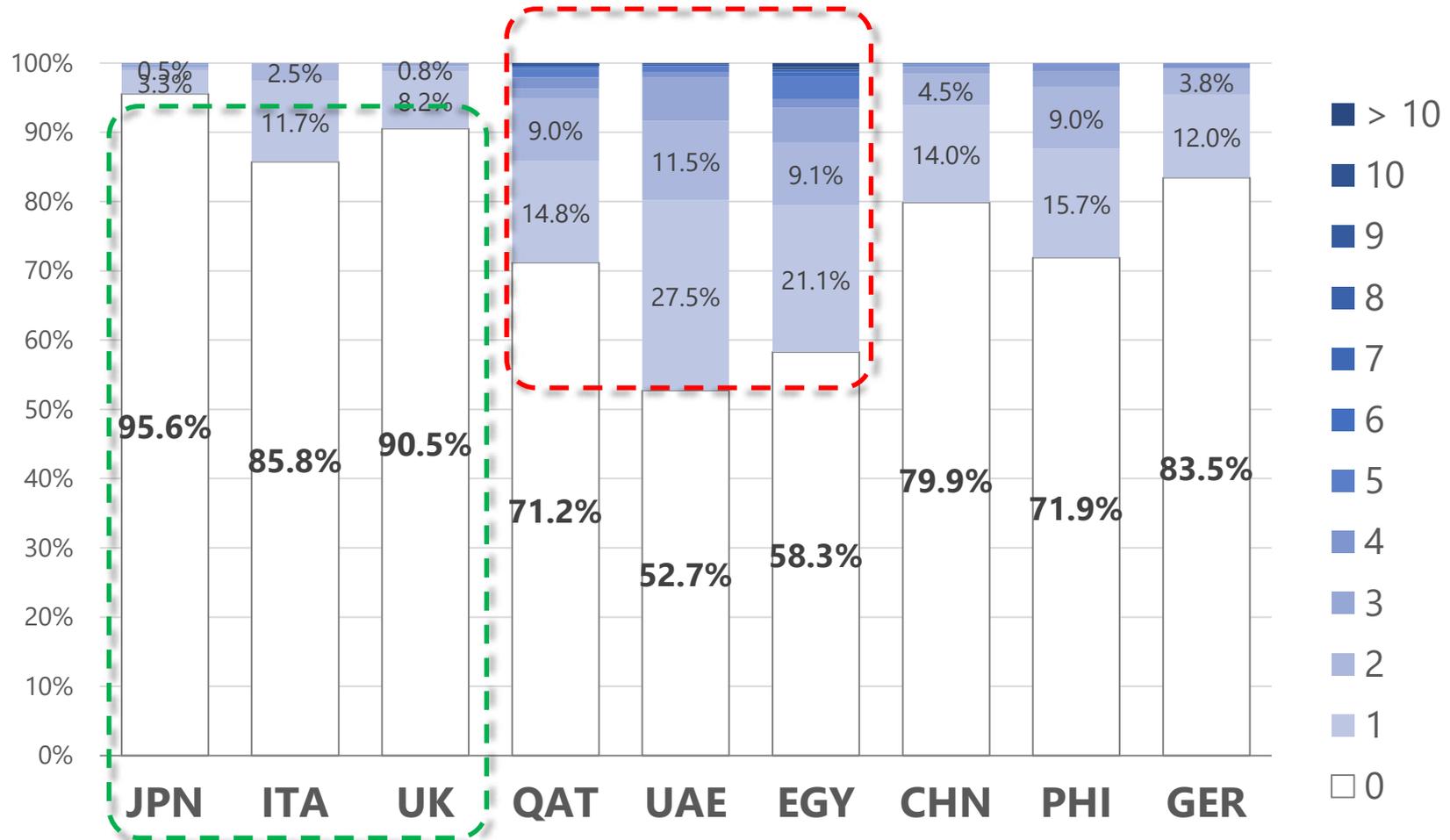
# Q2: Number of Traffic Violations in the Past 2 Years

- **Approx. 90% or more of the respondents violated no regulations in JPN, ITA, UK, and GER.**
- **Approx. 30 to 70% of the respondents violated regulations in QAT, UAE, EGY, and CHN.**



# Q3: Number of accidents while driving in past two years

- The rate of zero traffic accidents in the past 2 years in **JPN** and **UK** is approx. 90% or more.
- Respondents involved in more than 1 accident in **QAT, UAE, and EGY** was 30 to 40%.

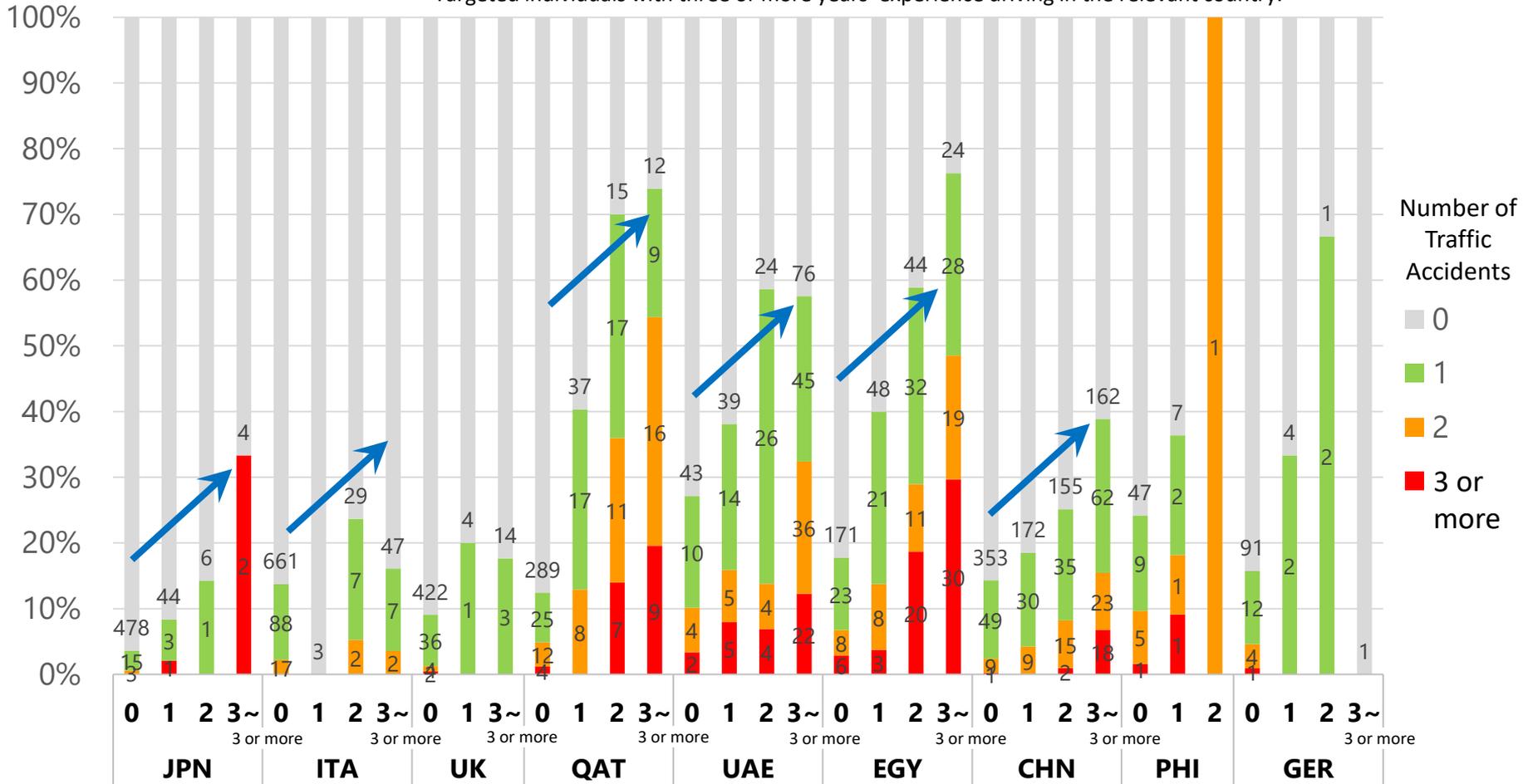


# Q2 and Q3: Number of Times Traffic Regulations were violated and Traffic Accidents Occurred



- The more that traffic regulations were violated, the more traffic accidents that occurred.
- Involvement in more than one traffic accident was greater in emerging countries.

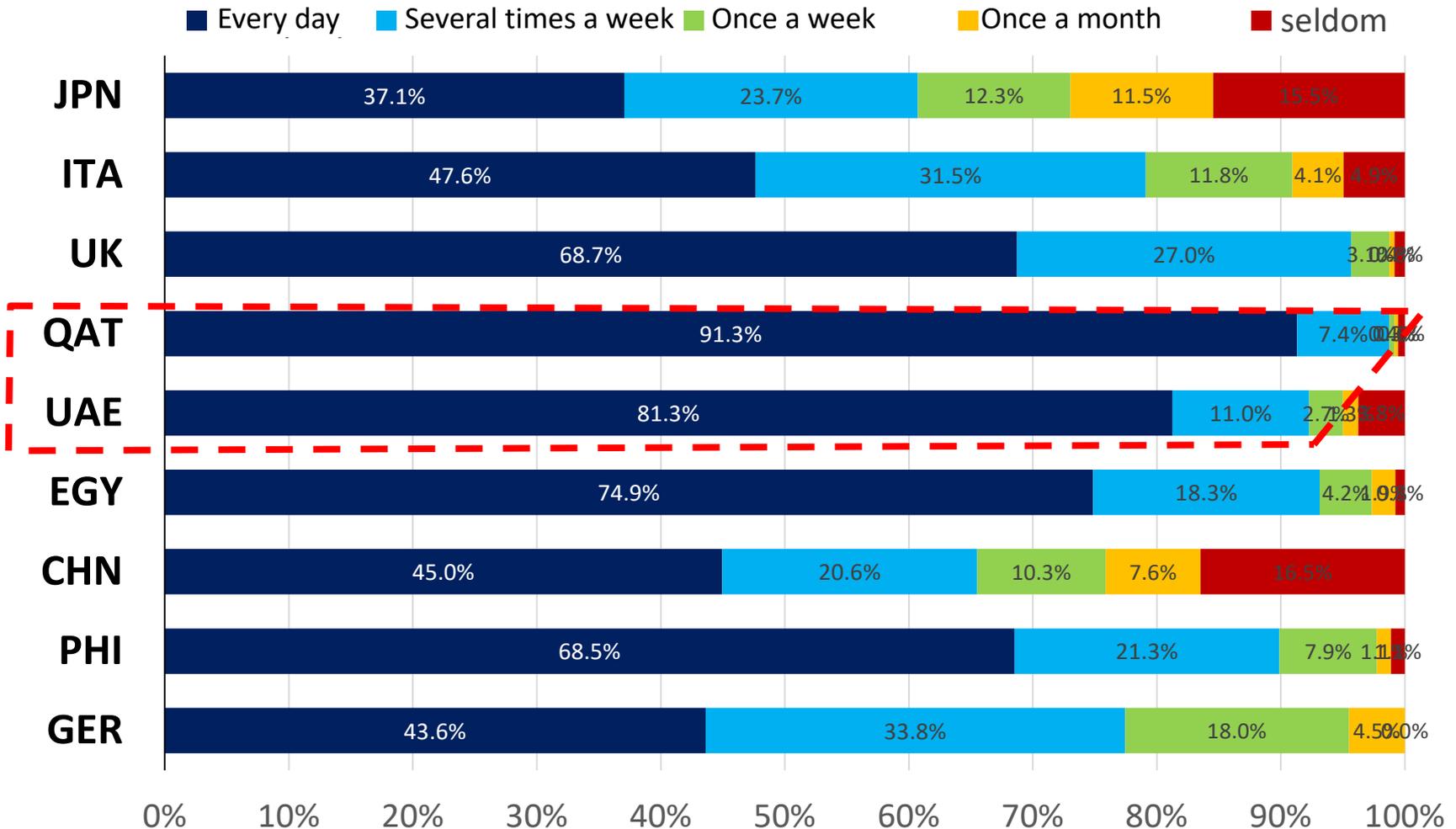
\* Targeted individuals with three or more years' experience driving in the relevant country.



Number of Traffic Accidents in the Past 2 Years

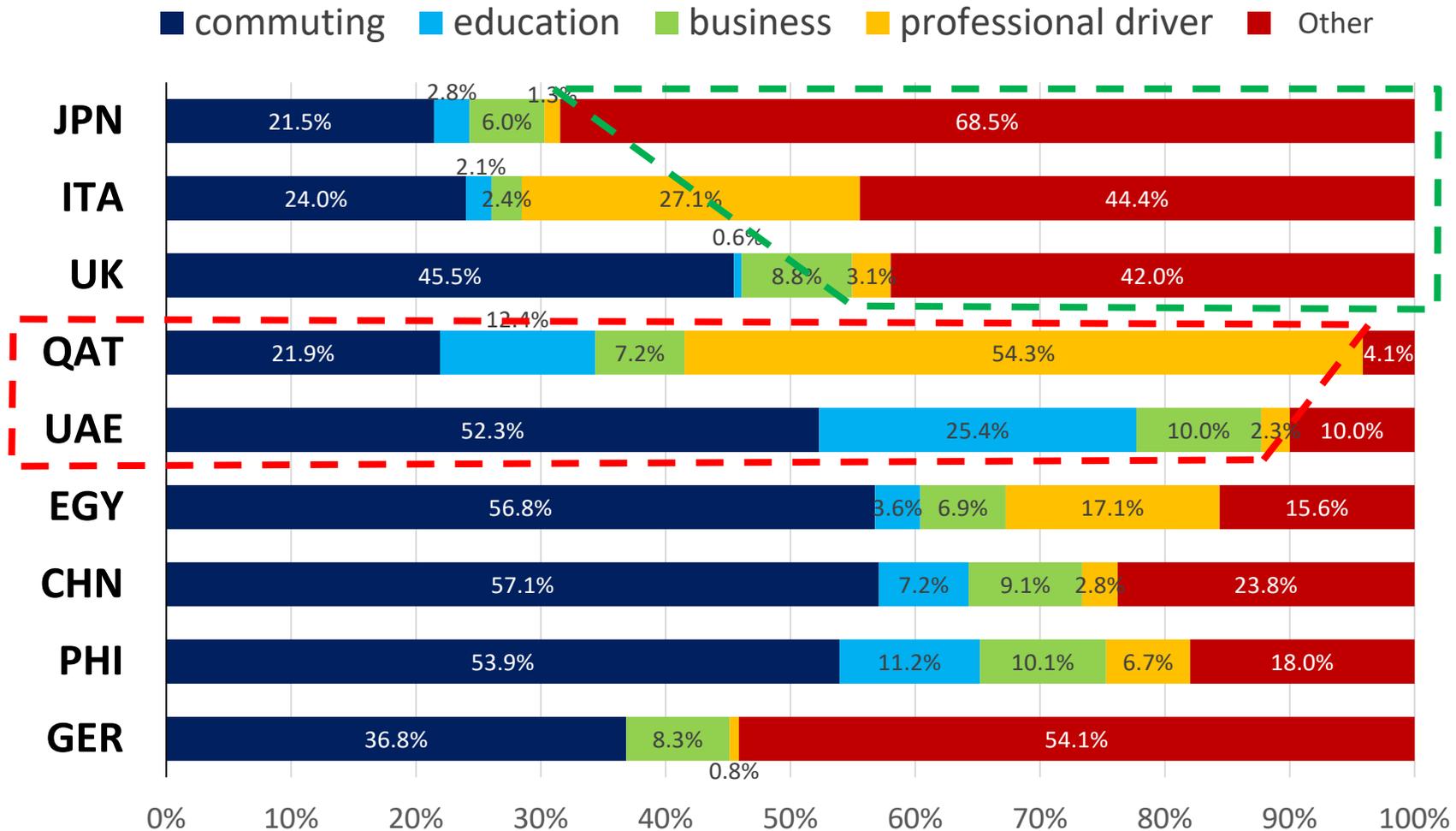
# Q4: Driving Frequency

- Majority of respondents in QAT and UAE drove frequently (every day - several times a week).
- More respondents in JPN, ITA, UK, and CHN drove and used a combination of other means of transportation.



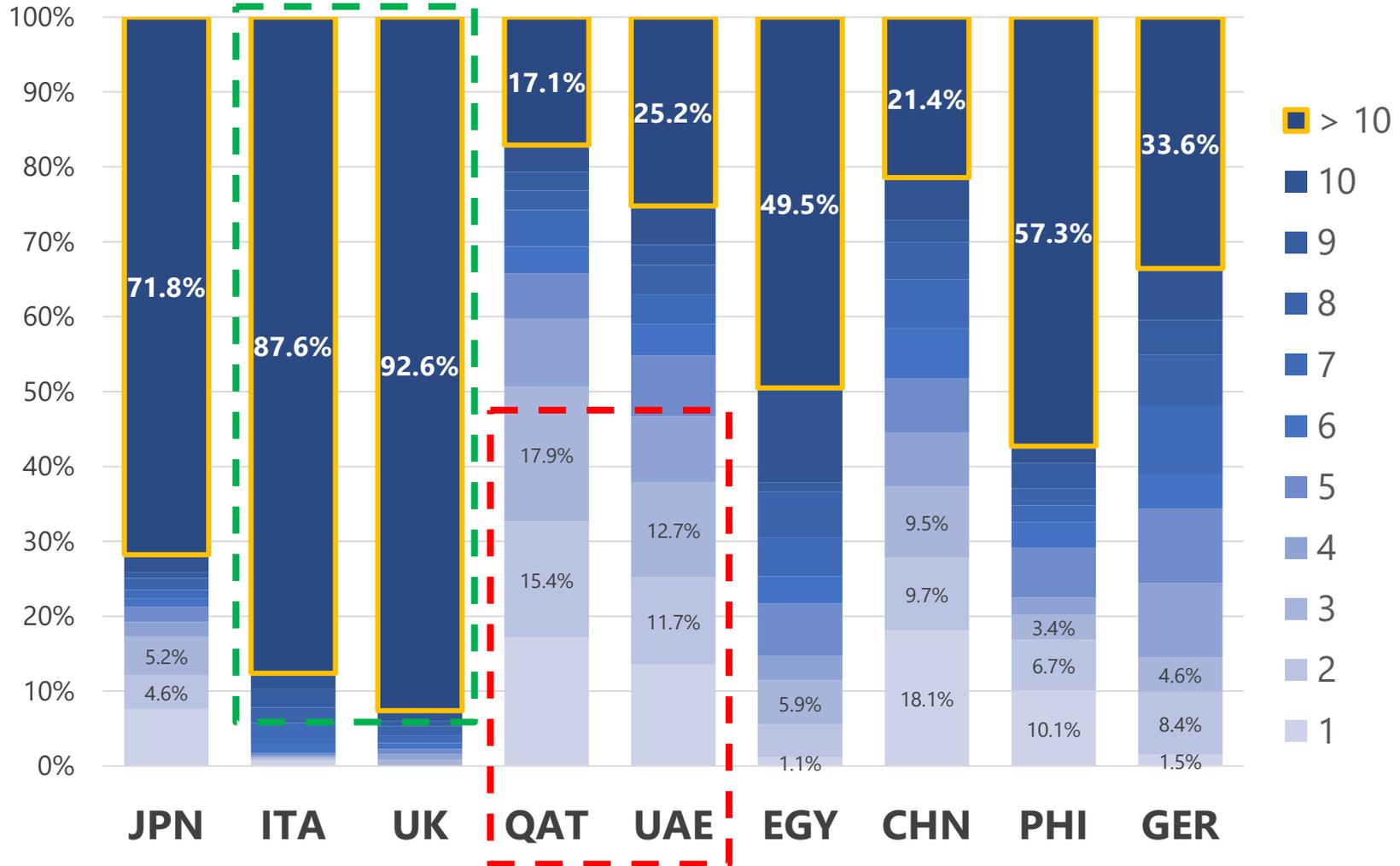
# Q5: Major purpose of driving

- Respondents in **JPN, ITA, and UK** drove for “other (leisure/shopping, etc.)” more often.
- Respondents in **QAT and UAE** drove in an environment where automobiles are essential for daily living.



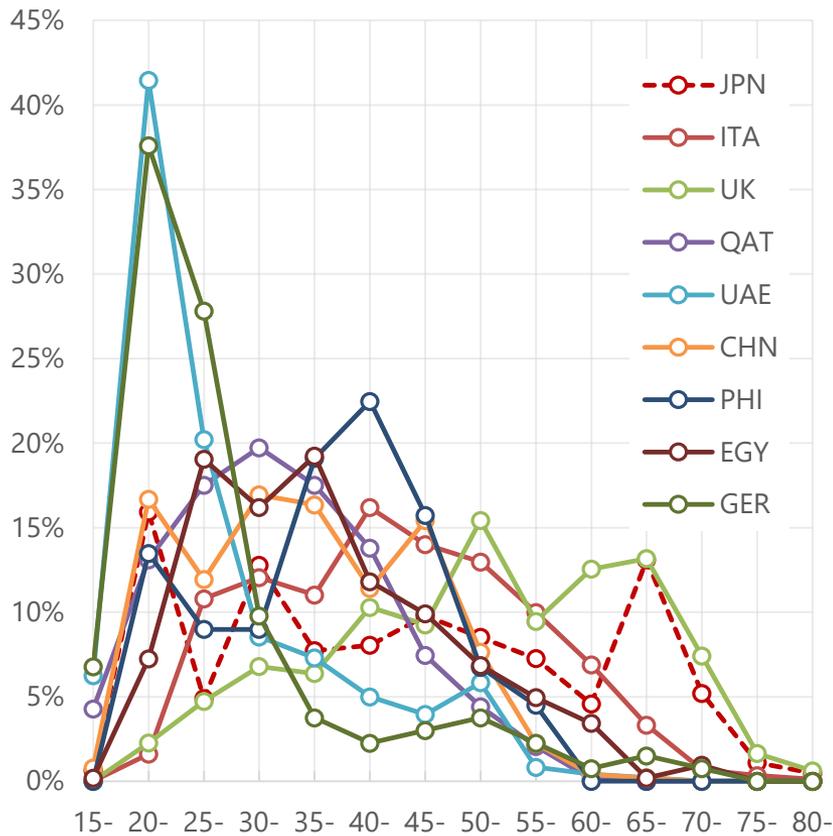
# Q6: Years of driving experience in targeted countries

- Majority of respondents in **ITA** and **UK** had 10 or more years' driving experience (influenced by the age composition of respondents)
- Majority of respondents in **QAT** and **UAE** had 3 or fewer years' driving experience (influenced by foreign residents and young people)

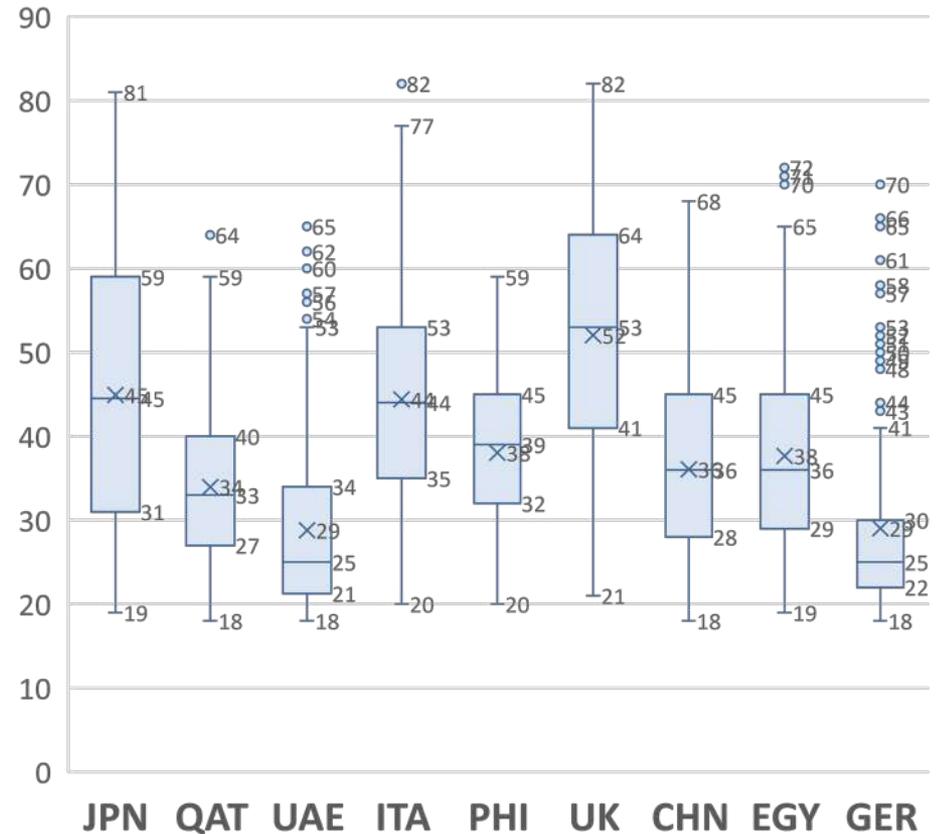


# Q7: Age group

- Age of respondents in JPN, ITA, and UK is broadly distributed.
- Age of respondents in QAT, UAE, and GER inclines toward younger people.



Age Composition by Country

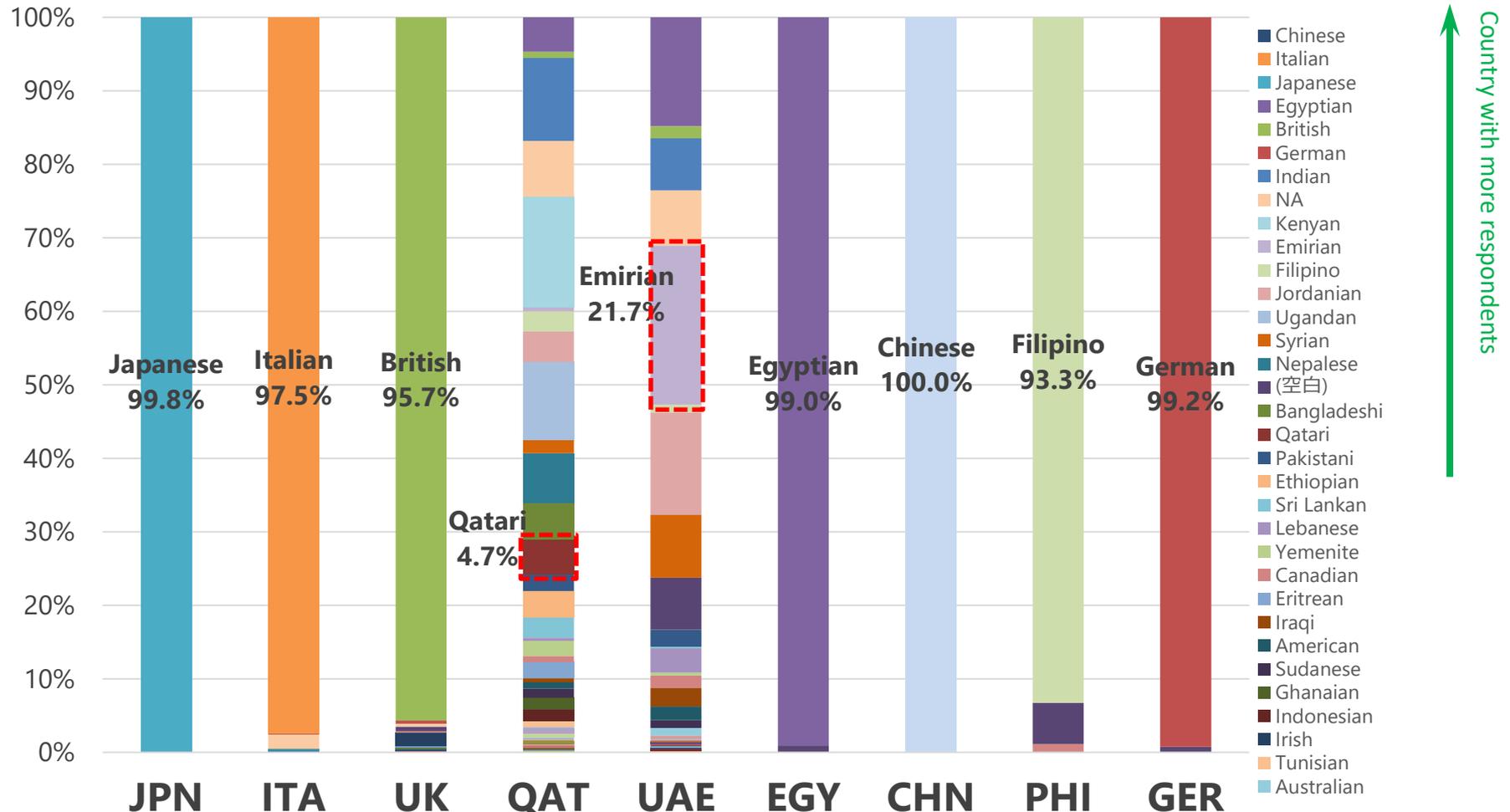


Age Distribution by Country

Horizontal lines in boxes show Min – 25 percentile – 50 percentile – 75 percentile – Max.

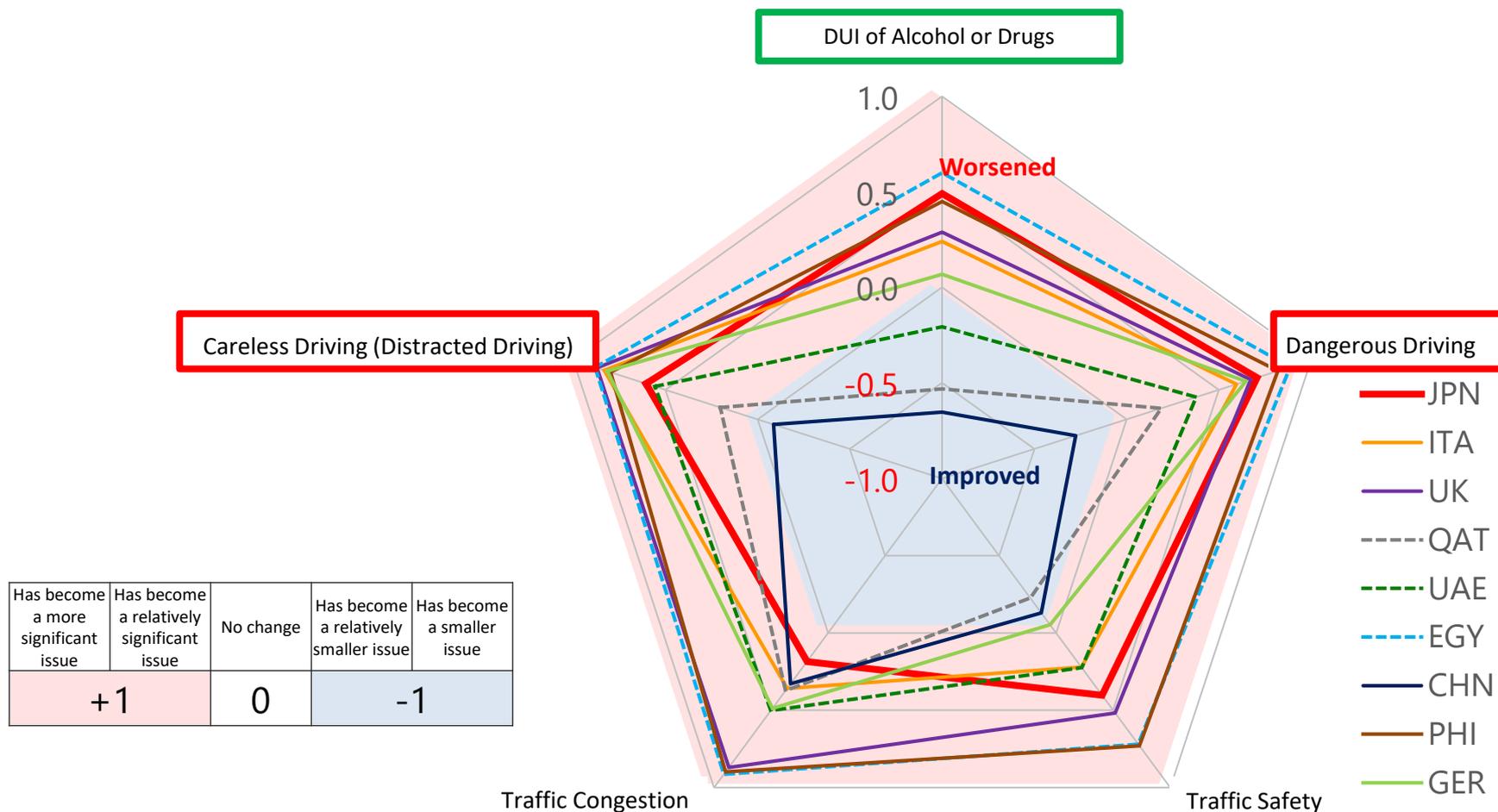
# Q9: Nationality of respondents

- Respondents in QAT and UAE are multinational, and the rate of respondents residing in the country of their nationality is small.
  - Organizing the nationalities (free-description). (NA means unknown response.)



# Q12: Awareness on Traffic Issues Compared with 3 Years Ago IATSS

- Quantification of multiple responses (Worsened=1, No change=0, Improved=-1)
  - Careless driving and dangerous driving worsened except in QAT and CHN.
  - Driving under the influence of alcohol or drugs (DUI) improved in Middle Eastern countries.



Has become a more significant issue	Has become a relatively significant issue	No change	Has become a relatively smaller issue	Has become a smaller issue
+1		0		-1

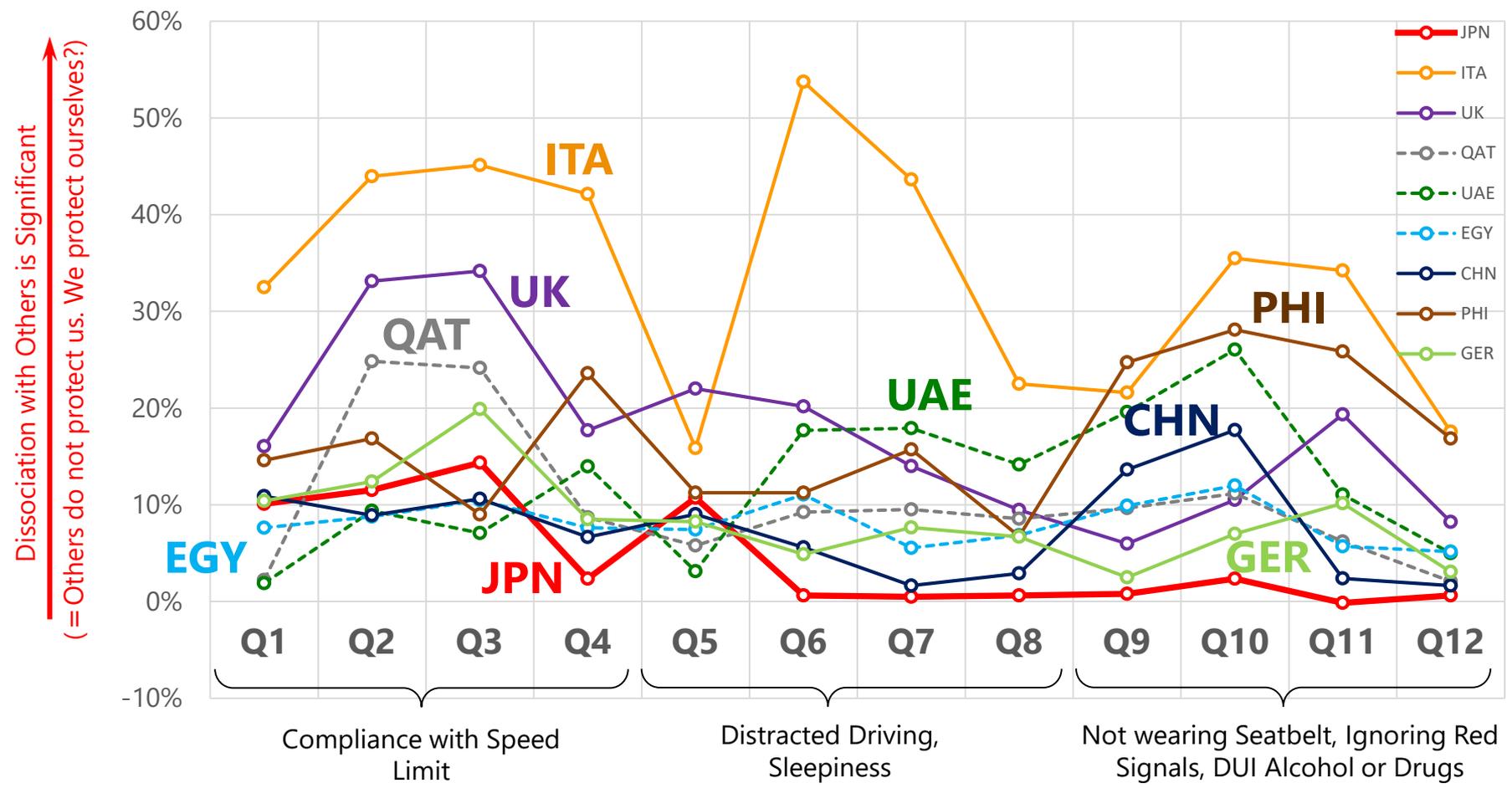
# Q13 to 14 Tolerance for Traffic Behaviors

## ➤ Dissociation between Respondents and Others regarding Tolerance for Traffic Behaviors

– Calculate (Others) – (Respondents) rate

Can tolerate completely.	Can tolerate.	Cannot tolerate so much.	Cannot tolerate at all.
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- ITA showed a significant dissociation while JPN showed a small dissociation.

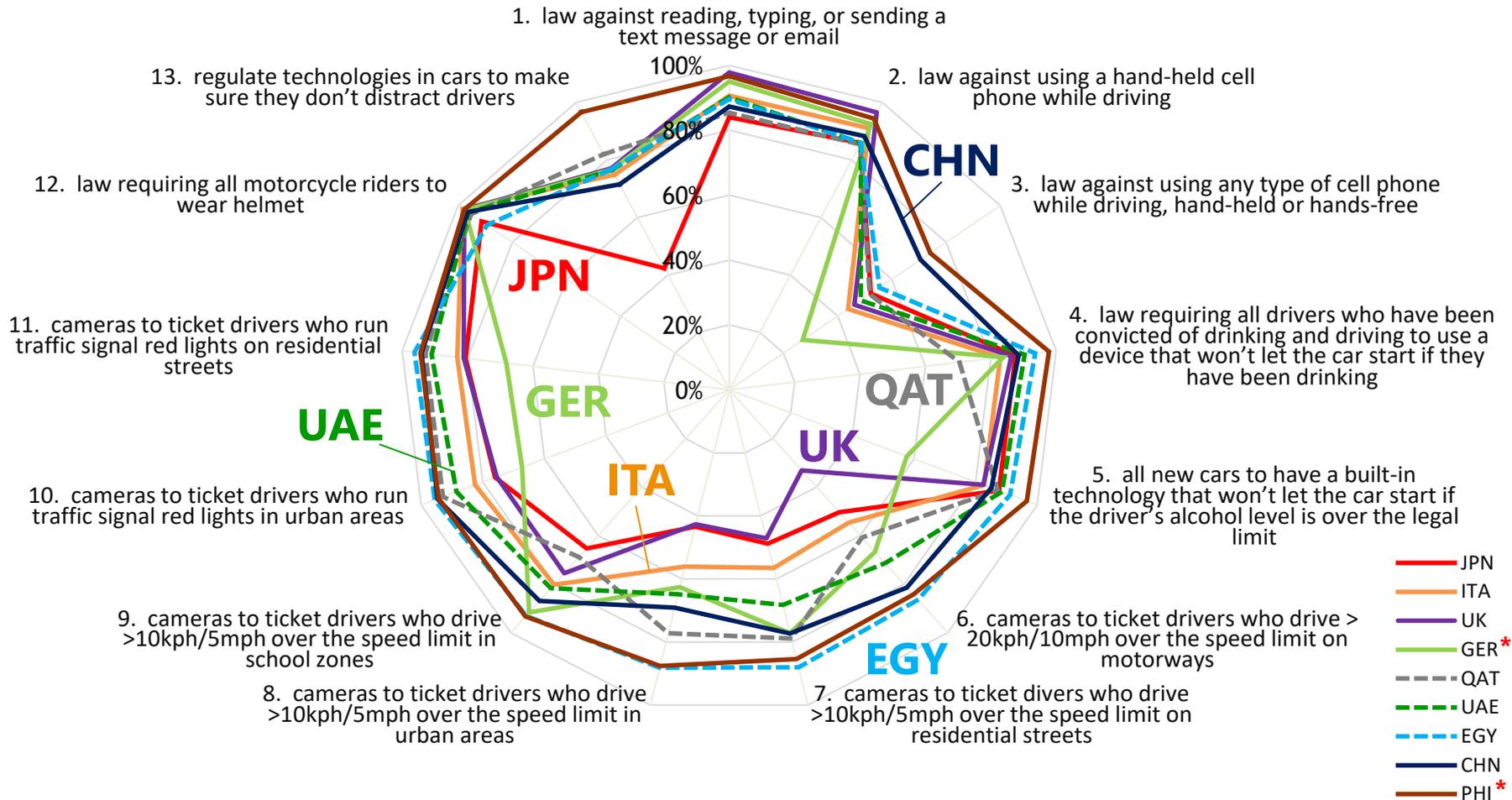


# Q15: Supporting rate to traffic regulations/enforcement policies



## ➤ Acceptance Rate for Rules and Regulations by Country

- Tolerance for rules and regulations is high in emerging countries, and low in developed countries.



\*Incomplete number of samples

Strongly Agree	Relatively Agree	Relatively Disagree	Strongly Disagree
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Rate of "Agree" when considering "Strongly agree" and "Relatively agree" as "Agree"

- Examined the characteristics of respondents who have been involved in traffic accidents in the past 2 years using a logistic regression model<sup>1, 2</sup>

	Estimate	Std. Error	z value	Pr(>  z )
• Constant Term	-3.619	0.301	-12.019	0.000 ***
• Violated traffic regulations in the past 2 years	0.915	0.487	1.879	0.060 .
• Estimated tolerance of others for dangerous driving <sup>2</sup>	0.291	0.150	1.942	0.052 .
• Degree of agreement on the enhancement of regulations against the use of mobile phones <sup>3</sup>	-0.386	0.155	-2.486	0.013 *
• Difference between self and others regarding tolerance for illegal driving	0.153	0.056	2.728	0.006 **
• Number of samples	535	. p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001		
• Initial likelihood	208.07	Note 1: Explained variable for having been involved in traffic accidents: 1, Not having been involved in traffic accidents: 0 Note 2: Select explained variable by the step-wise method Note 3: Based on the factor analysis results of Q14 Note 4: Based on the factor analysis results of Q15		
• Final likelihood	186.02			
• Likelihood ratio	0.106			
• AIC	195.47			

Individuals cited for violating traffic regulations

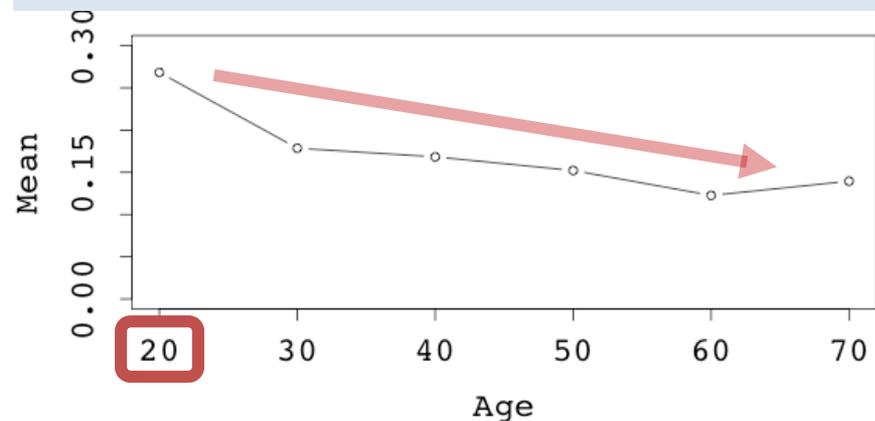
Individuals who feel strongly that others tend to tolerate dangerous driving

Individuals opposing the enhancement of regulations against using mobile phones while driving

Individuals who feel that others tolerate illegal driving more than they do

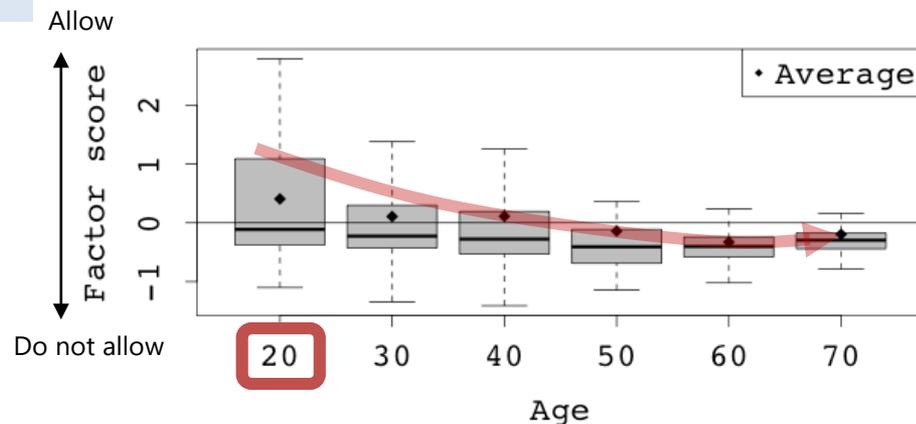
# Examples of Model Analysis in Japan: Characteristics of Individuals who have been involved in Traffic Accidents

Average Number Cited for Violating Traffic Regulations (Past 2 Years)



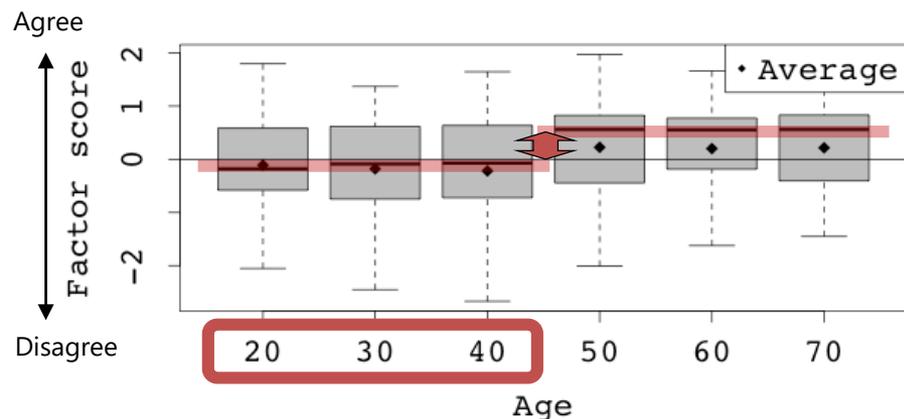
Individuals in their 20s were relatively high.

Tolerance for Dangerous Driving (Others)



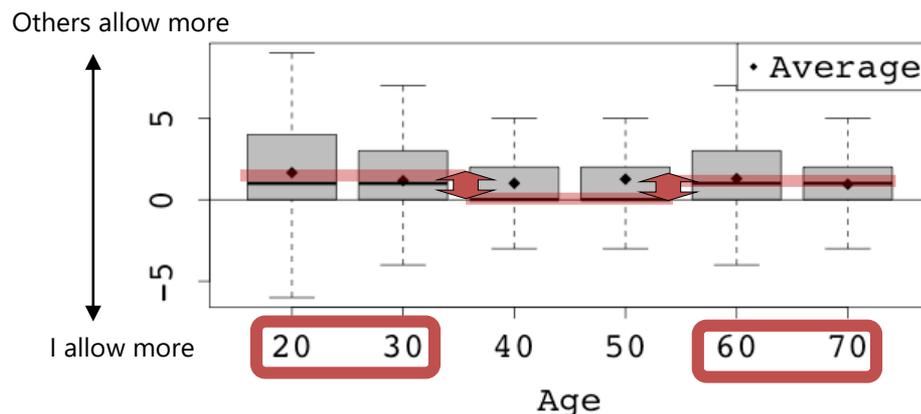
Individuals in their 20s were relatively high.

Enhancement of Regulations against Using Mobile Phones



Individuals in their 20s to 40s highly disagreed.

Difference in Tolerance for Illegal Driving from Others



Others (younger and older people) > Respondents

- **平均違反検挙回数 (過去2年間)** Age does not have a direct influence, although being involved in traffic accidents has a direct influence.

- **危険運転許容度 (他者)** Factors that have a significant influence

- Number cited for violating traffic regulations
- Others' tolerance for dangerous driving
- Opinions about the enhancement of regulations against using mobile phones while driving
- Difference of tolerance for illegal driving from others

許容する

Factor score



Distinctive in the young generation, especially individuals in their 20s

20代で高い傾向

20代で高い傾向

- Opposing the enhancement of regulations against using mobile phones while driving > Possibility of using mobile phones while driving
  - Necessity of raising awareness through the enhancement of mobile phone regulations
- Necessity of enlighten and education programs by age group
  - Promoting understanding of the risk of dangerous driving (DUI of alcohol or drugs, using mobile phone, ignoring red signals, etc.)
  - Cultivating awareness of the entire society to prevent illegal driving

- Analyzing the correlation among the results of the traffic culture questionnaire survey held in each country, their traffic safety measures, and information collected in each country (through hearings and visits) and considering future visions.
  1. Understand the characteristics of drivers' awareness in each country based on the results of the traffic cultural questionnaire survey.
  2. Interpret the questionnaire results taking account of the experience of on-site surveys and hearings, and the results.
  3. Refer to prior information acquired before visiting each country (other actualized data and data acquired in each country) and examine the consistency with the awareness mentioned in above 1.
  4. Check the correlation between the results of the survey and traffic safety measures of each country at the moment.

- Compare the awareness of drivers using their tolerance for dangerous driving
- Age-categorized distribution data of respondents
  - Totaling by the following 3 categories excluding PHI

	Age	JPN	ITA	UK	QAT	UAE	CHN	EGY	PHI
18-29	18~19	4			31	30	12	1	
	20~29	132	108	34	222	296	434	138	20
30-49	30~39	130	201	64	270	76	505	186	25
	40~49	113	263	95	154	43	407	114	34
50 and above	50~59	100	200	121	47	32	150	62	10
	60~69	112	89	125	1	3	9	19	
	70~79	40	9	44				5	
	80~89	3	1	3					
<b>Total</b>		<b>634</b>	<b>871</b>	<b>486</b>	<b>725</b>	<b>480</b>	<b>1517</b>	<b>525</b>	<b>89</b>

# International Comparison of User Awareness through Questionnaire Surveys

- Survey results by age category: Tolerance for dangerous driving (**respondents**)
  - **Common Tendency:** Tolerance for speeding (high speed, residential areas, urban areas) and hands-free telephones is relatively high.
  - Characteristic tendency: Tolerance for non-use of seatbelts by passengers is relatively high in **UAE, CHN, and EGY**, the tolerance for ignoring red signals is relatively high in **ITA and EGY**, and the tolerance for speeding in school zones is relatively low in **ITA and UK**. **EGY** revealed higher tolerance in almost all items than other countries.
  - Overall tendency: The younger they are, the tolerance becomes higher. The older they are, the tolerance becomes lower.

Item	Country (Age)			JPN			ITA			UK			QAT			UAE			CHN			EGY		
	18~	30~	50~	18~	30~	50~	18~	30~	50~	18~	30~	50~	18~	30~	50~	18~	30~	50~	18~	30~	50~	18~	30~	50~
Exceeding the speed limit on highways by 20km/h or more	63%	58%	44%	70%	60%	46%	76%	79%	62%	46%	21%	15%	76%	62%	57%	45%	44%	40%	79%	74%	48%			
Exceeding the speed limit in residential areas by 10km/h or more	45%	42%	28%	51%	41%	33%	38%	30%	16%	37%	21%	17%	54%	46%	46%	37%	35%	33%	67%	64%	48%			
Exceeding the speed limit in urban areas by 10km/h or more	57%	51%	45%	56%	37%	30%	35%	36%	24%	43%	22%	25%	55%	50%	40%	48%	47%	37%	65%	61%	44%			
Exceeding the speed limit in school zones by 10km/h or more	26%	22%	12%	20%	9%	8%	12%	5%	3%	29%	40%	35%	22%	23%	9%	28%	22%	20%	44%	46%	37%			
Use of hands-free phones while driving	47%	49%	32%	84%	75%	64%	71%	72%	48%	58%	47%	46%	79%	63%	60%	55%	58%	55%	50%	48%	48%			
Holding of mobile phones while driving	10%	12%	2%	10%	8%	5%	3%	1%	2%	13%	7%	6%	25%	13%	17%	17%	21%	19%	37%	43%	30%			
Mailing and chatting while driving	10%	6%	2%	2%	2%	2%	3%	0%	1%	8%	3%	6%	9%	3%	6%	9%	6%	4%	29%	30%	27%			
Distracted driving	4%	5%	2%	3%	1%	2%	6%	1%	1%	11%	3%	8%	12%	4%	0%	8%	7%	6%	24%	31%	22%			
Driver non-use of seatbelts	12%	14%	5%	5%	6%	4%	0%	5%	3%	14%	5%	6%	14%	8%	14%	11%	13%	13%	40%	39%	40%			
Passenger non-use of seatbelts	16%	15%	7%	18%	17%	10%	0%	4%	3%	23%	7%	10%	31%	13%	46%	25%	29%	30%	47%	45%	47%			
Ignoring red signals	10%	7%	4%	19%	14%	7%	9%	7%	4%	8%	6%	6%	8%	2%	0%	4%	4%	4%	14%	25%	21%			
DUI of alcohol or drugs while driving	4%	4%	2%	5%	2%	2%	3%	1%	1%	1%	4%	4%	3%	3%	0%	3%	2%	3%	9%	22%	16%			
# of respondents	136	243	255	108	464	299	34	159	293	253	424	48	326	119	35	446	912	159	139	300	86			

# International Comparison of User Awareness through Questionnaire Surveys

- Survey results by age category: Tolerance for dangerous driving (**others**)
  - **Common Tendency:** Tolerance for speeding (high speed, residential areas, urban areas) and hands-free telephones is relatively high.
  - Characteristic tendency: **ITA, UAE, EGY** revealed higher tolerance in almost all items than other countries.
  - Overall tendency: The older they are, the lower tolerance becomes; however, the difference by age is not so large.

Item	Country (Age)			JPN			ITA			UK			QAT			UAE			CHN			EGY		
	18~	30~	50~	18~	30~	50~	18~	30~	50~	18~	30~	50~	18~	30~	50~	18~	30~	50~	18~	30~	50~	18~	30~	50~
Exceeding the speed limit on highways by 20km/h or more	81%	63%	55%	92%	90%	86%	82%	94%	81%	45%	22%	33%	75%	69%	63%	53%	56%	50%	87%	80%	60%			
Exceeding the speed limit in residential areas by 10km/h or more	62%	52%	38%	83%	85%	82%	71%	60%	51%	49%	51%	60%	63%	57%	46%	45%	40%	81%	71%	53%				
Exceeding the speed limit in urban areas by 10km/h or more	74%	64%	60%	82%	84%	79%	62%	67%	61%	57%	50%	65%	62%	56%	51%	56%	59%	50%	77%	72%	53%			
Exceeding the speed limit in school zones by 10km/h or more	29%	23%	16%	45%	52%	55%	26%	25%	20%	39%	46%	58%	37%	33%	31%	31%	31%	29%	60%	52%	37%			
Use of hands-free phones while driving	63%	60%	38%	87%	90%	87%	79%	89%	75%	62%	52%	71%	81%	68%	66%	69%	66%	58%	58%	56%	51%			
Holding of mobile phones while driving	14%	12%	2%	51%	61%	65%	21%	20%	23%	27%	12%	27%	43%	33%	26%	25%	26%	21%	55%	51%	43%			
Mailing and chatting while driving	10%	7%	2%	34%	45%	52%	21%	14%	14%	21%	9%	25%	26%	23%	26%	13%	7%	4%	37%	33%	35%			
Distracted driving	7%	5%	2%	16%	23%	28%	9%	11%	11%	22%	10%	25%	25%	21%	14%	14%	9%	8%	35%	35%	33%			
Driver non-use of seatbelts	13%	14%	6%	24%	26%	30%	9%	13%	8%	28%	11%	27%	35%	24%	37%	26%	25%	27%	51%	50%	45%			
Passenger non-use of seatbelts	24%	16%	8%	56%	50%	49%	15%	15%	12%	38%	14%	35%	57%	44%	60%	47%	45%	42%	59%	57%	60%			
Ignoring red signals	12%	6%	3%	49%	48%	42%	24%	30%	22%	16%	11%	23%	17%	14%	17%	10%	5%	5%	27%	27%	27%			
DUI of alcohol or drugs while driving	5%	5%	2%	19%	20%	20%	6%	10%	9%	3%	5%	15%	7%	8%	11%	5%	3%	5%	17%	26%	20%			
# of respondents	136	243	255	108	464	299	34	159	293	253	424	48	326	119	35	446	912	159	139	300	86			

# International Comparison of User Awareness through Questionnaire Surveys



## ➤ Tolerance for dangerous driving (**others – respondents**), Survey results by age category

- Overall tendency: Along with age, the dissociation of tolerance between “others” and “respondents” tends to become larger.  
(They feel that the older they are, the more they protect themselves, but not others.)
- Characteristic tendency: **ITA and UK** revealed a significant difference. **QAT, UAE and CHN** revealed relatively high tolerance in non-use of seatbelts than others.

Items	Country (Age)			JPN			ITA			UK			QAT			UAE			CHN			EGY		
	18~	30~	50~	18~	30~	50~	18~	30~	50~	18~	30~	50~	18~	30~	50~	18~	30~	50~	18~	30~	50~	18~	30~	50~
Exceeding the speed limit on highways by 20km/h or more	18%	5%	11%	21%	30%	40%	6%	14%	18%	0%	2%	19%	0%	7%	6%	8%	13%	9%	8%	6%	13%			
Exceeding the speed limit in residential areas by 10km/h or more	17%	9%	11%	32%	44%	48%	32%	30%	35%	12%	30%	44%	10%	11%	0%	8%	10%	7%	14%	7%	6%			
Exceeding the speed limit in urban areas by 10km/h or more	17%	12%	15%	26%	47%	49%	26%	30%	37%	14%	28%	40%	7%	7%	11%	7%	12%	13%	12%	10%	9%			
Exceeding the speed limit in school zones by 10km/h or more	2%	0%	4%	25%	43%	47%	15%	19%	17%	10%	6%	23%	14%	10%	23%	3%	8%	9%	16%	6%	0%			
Use of hands-free phones while driving	16%	12%	7%	3%	15%	22%	9%	17%	26%	4%	5%	25%	2%	5%	6%	14%	8%	3%	9%	8%	3%			
Holding of mobile phones while driving	4%	0%	0%	41%	53%	59%	18%	19%	21%	14%	5%	21%	18%	19%	9%	8%	5%	3%	18%	7%	13%			
Mailing and chatting while driving	1%	1%	0%	32%	42%	50%	18%	14%	13%	14%	6%	19%	17%	19%	20%	3%	1%	0%	9%	3%	8%			
Distracted driving	3%	0%	0%	13%	22%	26%	3%	9%	10%	11%	6%	17%	13%	17%	14%	6%	2%	1%	11%	4%	10%			
Driver non-use of seatbelts	1%	0%	1%	19%	19%	26%	9%	8%	4%	14%	6%	21%	21%	15%	23%	15%	13%	14%	11%	11%	6%			
Passenger non-use of seatbelts	7%	1%	1%	38%	33%	38%	15%	11%	10%	15%	7%	25%	26%	30%	14%	22%	16%	13%	12%	11%	14%			
Ignoring red signals	1%	-1%	0%	30%	34%	35%	15%	23%	18%	8%	4%	17%	10%	13%	17%	5%	1%	1%	13%	2%	6%			
DUI of alcohol or drugs while driving	1%	1%	0%	15%	18%	18%	3%	9%	8%	2%	1%	10%	4%	5%	11%	2%	1%	3%	9%	4%	3%			
# of respondents	136	243	255	108	464	299	34	159	293	253	424	48	326	119	35	446	912	159	139	300	86			

## ➤ Pillars and Points of Traffic Safety Measures in Each Country

JPN <sup>1</sup> 	ITA <sup>2, 3</sup> 	QAT <sup>4</sup> 	EGY <sup>5</sup> 
<ul style="list-style-type: none"> <li>• Development of <u>road traffic environment</u></li> <li>• Thorough dissemination of <u>traffic safety concept</u></li> <li>• <u>Assurance of safe driving</u></li> <li>• Ensuring safety of <u>vehicles</u></li> <li>• <b>Maintenance of road traffic order</b></li> <li>• Enhancement of <u>rescue and emergency care activities</u></li> <li>• <b>Enhancement of support for victims and its promotion</b></li> <li>• <b>Enhancement of research and development, and research and investigations</b></li> </ul>	<ul style="list-style-type: none"> <li>• For <u>roads</u></li> <li>• For <u>road users</u></li> <li>• For <u>vehicles</u></li> <li>• For <u>Post-crash measures</u> ****</li> <li>• <b>Reduce improper or excessive vehicle speed</b></li> <li>• <b>Reduce driving under the influence of alcohol</b></li> <li>• <b>Increase seatbelt use both for front seat passengers and rear seat passengers</b></li> <li>• Improve vehicle safety</li> <li>• Improve safety of road network</li> <li>• Improve access time of emergency medical services</li> </ul>	<ul style="list-style-type: none"> <li>• Safe <u>road users</u></li> <li>• Safe <u>vehicles</u></li> <li>• Safe <u>roads</u></li> <li>• <b>Safe speeds</b></li> <li>• <b>Road Safety Management</b></li> <li>• <u>Post Crash Response</u></li> </ul>	<ul style="list-style-type: none"> <li>• <b>Road safety management</b></li> <li>• Safer <u>roads</u> and mobility</li> <li>• Safer <u>vehicles</u></li> <li>• Safer <u>road users</u></li> <li>• <u>Post crash response</u></li> </ul>

Notes)

1: Central Council for Traffic Safety Measures, 2016 Traffic Safety Basic Plans

2: [http://www.istat.it/en/files/2015/11/EN\\_Road\\_accidents\\_2014.pdf?title=Road+accidents+in+Italy+-+3+Nov+2015+-+Full+text.pdf](http://www.istat.it/en/files/2015/11/EN_Road_accidents_2014.pdf?title=Road+accidents+in+Italy+-+3+Nov+2015+-+Full+text.pdf)

3: GIFTS materials by Lorenzo Mussone, ITALY\_erso-country-overview-2016-italy\_en.pdf

4: National Road Safety Strategy 2013-2022

5: WHO, EGYPT: a national decade of action for road safety 2011–2020

# Viewpoints regarding Traffic Safety Measures, Summary of Current State and Responses (Overall)



Viewpoint	Traffic Safety Targets & Measures	Characteristics of Questionnaire Results	Characteristics of Hearing and On-site Survey Results
<b>Roads</b>	JPN/ITA/QAT/EGY	JPN/ITA/QAT/EGY	ITA/QAT•UAE/EGY
School Zones	✓/✓/✓/-	✓/✓/✓/✓	Citta 30/Zone 30/*
Equipment for Pedestrians	✓/-/✓/-	-	* /Hump/Grade separation for pedestrians
Highways & Networks	✓/✓/✓/✓	✓/✓/✓/✓	Accidents/High-standard/Hierarchical road networks, Ring roads
<b>Traffic Management</b>	JPN/ITA/QAT/EGY		
Inflow Regulations	-/✓/-/✓	-	ZTL*/Regulations for the inflow of large vehicles
<b>Speed</b>	JPN/ITA/QAT/EGY	✓/✓/✓/✓	TUTOR/Hierarchical road networks/Hierarchical road networks
<b>Vehicles</b>	JPN/ITA/QAT/EGY		
Seatbelts	✓/✓/✓/✓	✓/✓/✓/✓	Non-use/Non-use/*
Automobile Inspections	✓/-/✓/✓	-	*/*/Simplified & poor maintenance
<b>Road Users</b>	JPN/ITA/QAT/EGY		
Driver Education	✓/✓/✓/✓	-	Vocation D/Vocation D, Multi-national/Insufficient
Regulations	✓/✓/✓/✓	✓/✓/✓/✓	Camera (ZTL•Speed)/Camera (Speed)/*
Driver License System	✓/✓/✓/✓	-	Point system & easy to renew/For multi-national & digitalization/Implementation of point system
<b>Emergency Care</b>	JPN/ITA/QAT/EGY		E-call/A wide range of vehicles & quick arrival, Response for females/*

# Viewpoints regarding Traffic Safety Measures, Summary of Current State and Responses (ITA)



Viewpoint	Traffic Safety Targets & Measures	Characteristics of Questionnaire Results	Characteristics of Hearing and On-site Survey Results
<b>Roads</b>	✓	Tolerance for ignoring red signals is relatively high.	Road Technology Committee meetings are held once every two years
<b>School Zones</b>	✓	Tolerance for speeding (respondents): Low	Zone 30 (Zona30)
<b>Equipment for Pedestrians</b>	—		
<b>Highways &amp; Networks</b>	✓	Tolerance for speeding (respondents): Higher than other roads	Plans and building of new roads
<b>Traffic Management</b>	✓		City 30 (Citta30)
<b>Inflow Regulations</b>	✓		Promotion of charge system and ZTL (limited traffic zone in urban areas) (Set a goal of reducing traffic by 30%)
<b>Speed</b>	✓	<ul style="list-style-type: none"> <li>• Tolerance for speeding in school zones is low, and the acceptance rate for automatic detection is high.</li> <li>• Young people, Male, High frequency of driving→Tolerance for speeding: High</li> <li>• Acceptance of reinforced measures for regulations: Low</li> </ul>	Automatic speed detection system (TUTOR) (Regulations by section speed)
<b>Vehicles</b>	✓		Promotion of alcohol-lock and black box on vehicles
<b>Seatbelts</b>	✓	<ul style="list-style-type: none"> <li>• The higher the driving frequency becomes, the lower the tolerance of drivers for non-use of seatbelts is.</li> <li>• Young people→Tolerance for non-use of seatbelts by passengers is high.</li> </ul>	Required to wear seatbelts for all seats
<b>Automobile Inspections</b>			Promotion of reduced insurance fees for vehicles equipped with alcohol-lock and black box
<b>Road Users</b>	✓	<ul style="list-style-type: none"> <li>• Awareness of distracted driving issues: Significantly increased</li> <li>• Awareness of dangerous driving issues: Increased</li> </ul>	Holding a road safety campaign, "On the Good Road"
<b>Driver Education</b>	✓		Education for public transportation drivers (to reduce accidents involving bicycles, etc.)
<b>Regulations</b>	✓	<ul style="list-style-type: none"> <li>• Acceptance of automatic detection of speeding and prohibition of use of mobile phones on roads other than school zones is low.</li> <li>• Tolerance for dangerous driving: High→Acceptance for the tightening of regulations: Low</li> </ul>	Regulations using cameras (ZTL, TUTOR)
<b>Driver License System</b>	✓		Point system, Longer renewal period and simplified procedures
<b>Emergency Care</b>	✓		Implementation of eCall (automatic emergency call system) into new vehicles



ZONE 30 in Urban Areas



Automatic Speed Detection System - TUTOR



Regulations of Vehicle Inflow in City Centers (ZTL)



# Viewpoints regarding Traffic Safety Measures, Summary of Current State and Responses (Middle East)



Viewpoint	Traffic Safety Targets & Measures	Characteristics of Questionnaire Results	Characteristics of Hearing and On-site Survey Results
<b>Roads</b>	✓		Hierarchical road networks
<b>School Zones</b>	✓	Tolerance for speeding: Relatively high	Implementation of ZONE 30
<b>Equipment for Pedestrians</b>	✓		Adding "hump" to pedestrian crossings Building pedestrian bridges and underground passages (however, it is difficult to reduce <b>dangerous crossings</b> )
<b>Highways &amp; Networks</b>	✓	Tolerance for speeding: Relatively high (UAE)	Development of high-standards and multi-lane automobile roads
<b>Traffic Management</b>			
<b>Inflow Regulations</b>			(Preventing through traffic using hierarchical road networks)
<b>Speed</b>	✓	Tolerance for speeding: Varied by type of road	Setting speed limits hierarchically by type of road <b>Speeding on highways and following too closely are seen a lot.</b>
<b>Vehicles</b>	✓		
<b>Seatbelts</b>	✓	Tolerance for non-use of seatbelts by passenger: Relatively high	Recognizing non-use of seatbelts is a problem.
<b>Automobile Inspections</b>	✓		
<b>Road Users</b>			
<b>Driver Education</b>	✓		<ul style="list-style-type: none"> <li>• Short-term drivers from different countries are seen a lot. (They are unable to read road signs, etc.)</li> <li>• Enhancing safety measures for vocational drivers</li> </ul>
<b>Regulations</b>	✓	Acceptance of regulations against speeding using cameras: Varied	<ul style="list-style-type: none"> <li>• Well-developed regulations using IT</li> <li>• No violation tickets, but <b>penalties only</b></li> </ul>
<b>Driver License System</b>	✓		Standards for renewal of overseas licenses by country
<b>Emergency Care</b>	✓		Dubai: Average time required to transport to hospitals is 8 minutes. (Set a goal of achieving 4 minutes by 2020.)



Motorways with High Drivability



Hierarchical Road Network



Installation of Speed Suppression Devices at the Locations where Road Hierarchy Changes

# Viewpoints regarding Traffic Safety Measures, Summary of Current State and Responses (EGY)



Viewpoint	Traffic Safety Targets & Measures	Characteristics of Questionnaire Results	Characteristics of Hearing and On-site Survey Results
Roads	✓	Tolerance for ignoring red signals: Higher than other countries	<ul style="list-style-type: none"> <li>• Only a few crossings</li> <li>• Poor maintenance of traffic lanes/road signs</li> </ul>
School Zones		Tolerance for speeding: High Acceptance for enhancing regulations: High	
Equipment for Pedestrians			Development of pedestrian bridges and fences to prevent illegal crossings at intersections
Highways & Networks	✓	Tolerance for speeding: High Acceptance for enhancing regulations: High	Highway separation (only a few signals), Promotion of the development of ring roads
Traffic Management		Recognizing that <b>issue of traffic congestion</b> has become larger.	
Inflow Regulations	✓		Inflow regulations for large vehicles
Speed	✓	<ul style="list-style-type: none"> <li>• Tolerance for speeding: High, Acceptance of enhancing regulations: High</li> <li>• Young people and males show high tolerance for speeding.</li> <li>• Tolerance for speeding of commuting, business, and vocational drivers: High</li> <li>• Tolerance for speeding of drivers who have had accidents three times or more is high, and their acceptance of enhancing regulations is low.</li> </ul>	Issues of speeding and collisions between vehicles that are too close together. (Roads have been well developed, which enables drivers to increase speed easily.)
Vehicles	✓		<ul style="list-style-type: none"> <li>• Frequently occurring accidents caused by poorly maintained vehicles</li> <li>• Tax benefits for keeping vehicles longer</li> </ul>
Seatbelts	✓	<ul style="list-style-type: none"> <li>• Tolerance for non-use of seatbelts: High for both respondents and others</li> <li>• Tolerance for non-use of seatbelts for drivers who have had accidents three times or more: High</li> <li>• Tolerance for non-use of seatbelts for individuals commuting, on business, and shopping: High</li> </ul>	Recognizing non-use of seatbelts as an issue
Automobile Inspections	✓		Lots of old vehicles are on the road. Automobile inspections are very basic.
Road Users	✓	Recognizing that <b>dangerous and distracted driving</b> issues have become significantly large.	Lots of vehicles ignore traffic lanes, and do not use blinkers to signal a change of lanes. <b>Unstable driving is frequently seen.</b>
Driver Education	✓		Driver education is insufficient.
Regulations	✓	<ul style="list-style-type: none"> <li>• Overall acceptance excluding the prohibition of use of mobile phones is high.</li> <li>• Acceptance of measures by drivers who have had accidents three times or more: Low</li> <li>• Difference in acceptance of measures by attribute: Mainly the items regarding the use of mobile phones</li> </ul>	Only penalties, not license revocation →Inducing repeated violations
Driver License System	✓		Considering the implementation of point system
Emergency Care	✓		



Major Traffic Jam in City Center



Dangerous crossings often seen on general roads  
(Harmful influence caused of insufficient crossings)



Changing Lanes without Using a Blinker  
(Some vehicles do not stay in their lane.)



A Disabled Car on a Highway  
(Harmful influence caused by continuing to drive old cars)



Speed Limit by Lane on a Motorway  
(However, people do not follow the rules.)



Aging of Road Signs,  
Insufficient Maintenance



Inflow Regulations for Large Vehicles  
(Large vehicles should use a pre-determined lane.)

# Viewpoints regarding Traffic Safety Measures, Responses to Questionnaire Results (JPN)



Viewpoint	Traffic Safety Targets & Measures	Characteristics of Questionnaire Results
<b>Roads</b>	Promotion of ZONE 30	
<b>School Zones</b>		<ul style="list-style-type: none"> <li>• Tolerance for speeding: Low, Acceptance of automatic speed detection using cameras: High</li> <li>• Clearly different hierarchy from highways, and roads in downtowns and residential areas</li> </ul>
<b>Equipment for Pedestrians</b>		
<b>Highways &amp; Networks</b>		<ul style="list-style-type: none"> <li>• Tolerance for speeding: High, Acceptance of automatic speed detection using cameras: Low</li> </ul>
<b>Traffic Management</b>		
<b>Inflow Regulations</b>		
<b>Speed</b>		<ul style="list-style-type: none"> <li>• Tolerance for speeding on highways and roads in downtowns is high. (Majority of respondents were against automatic speed detection especially on roads in downtowns.)</li> <li>• Young males who cause accidents and violate traffic regulations more often show high tolerance for violations, and low acceptance of regulations.</li> </ul>
<b>Vehicles</b>	Promotion of development and publicizing of cutting-edge safe automobiles	
<b>Seatbelts</b>		<ul style="list-style-type: none"> <li>• Tolerance for non-use of seatbelts: Low, Passenger non-use of seatbelts &gt; Driver non-use of seatbelts</li> <li>• Young males who cause accidents and violate traffic regulations more often show high tolerance for non-use of seatbelts.</li> </ul>
<b>Automobile Inspections</b>		
<b>Road Users</b>		
<b>Driver Education</b>	Promotion of participation-type, experience-type, and practical activities	
<b>Regulations</b>		<ul style="list-style-type: none"> <li>• Acceptance of automatic detection of speeding and prohibition of use of mobile phones on roads other than school zones, and regulations against using devices causing distracted is low.</li> <li>• Young males who cause accidents and violate traffic regulations more often → Low tolerance for enhancement of regulations</li> </ul>
<b>Driver License System</b>		
<b>Emergency Care</b>	Promotion of cultivation and assignment of paramedics	

## ➤ Japan



- Enhancing rules and regulations against dangerous driving such as “ignoring red signals,” “distracted driving,” and “speeding in school zones” that respondents show low tolerance for
- Inflow regulations in city centers and 30km/h regulations in overall areas, regulations by setting limits for each section, traffic operations contributing to hierarchical road networks (U-turns, channelization at intersections, closure of intersections, etc.), discussions on rational speed limits

## ➤ Italy



- Driver education for young drivers (need for improvement of the license renewal system)
- Enhancing regulations against ignoring red signals (enforced using cameras)
- Measures against two-wheeled vehicle accidents in urban areas (for the elderly)

## ➤ Middle East



- Driver education for non-native drivers, improvement of license system
- Driver education that promotes recognition of speeding issues and use of seatbelts (for the young)
- Measures for pedestrians (dangerous crossing)

## ➤ Egypt



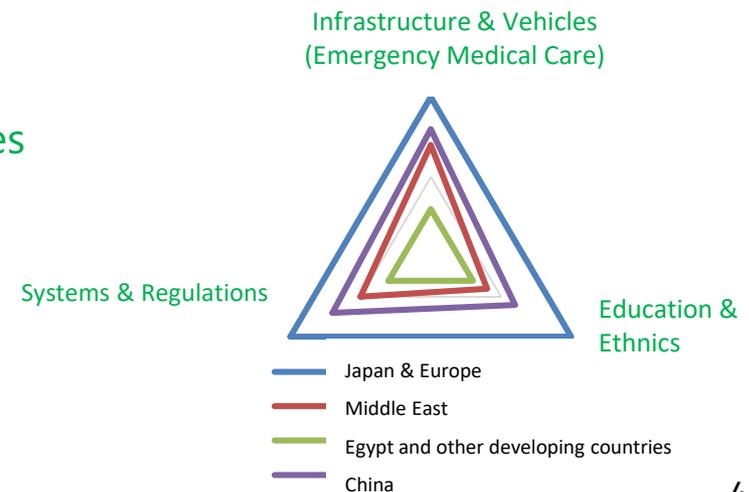
- Expansion of driver education, review of automobile inspection and tax systems
- Use of IT to enhance regulations
- Implementation of road structures considering convenience for pedestrians, and traffic measures
- Reduction of traffic inflow to city centers

## ➤ Common Issues for Many Countries

- The more the individual violated traffic regulations, the more accidents that occurred.
- Young drivers and individuals who have driven vehicles for only a few years tend to show high tolerance for violation of traffic regulations.
- Tolerance of speeding and hands-free telephones is high.
- As the drivers age, their normative consciousness improves.
  
- The results described above seem to be similar to the results of the model analysis for questionnaire data.
  - Logistic regression model, Cluster analysis, Ordinal logit model, etc.

## ➤ Hypothesis of difference in the rate of fatal traffic accidents in each country

- Is it possible to classify with three axes?
  
- Development standards for infrastructure/vehicles  
(/emergency medical care)
- Traffic safety education and diversity in ethnics
- Systems and regulations



- Through on-site surveys, hearings, and questionnaire surveys, we were able to gain a rough understanding of the difference in traffic accidents, normative consciousness, and safety measures among countries with different cultures and in different phases of development.
- Through the cooperation with researchers in all countries regarding questionnaire surveys and analyses, we promoted understanding of international traffic safety activities by IATSS, and achieved good results in each country.
- Researchers from nine partner countries for this project gathered in Brussel for an IATSS-Vias International Joint Workshop on March 28, 2019.



- Building cooperative relationship with Vias institute (Belgian Road Safety Institute) which organizes e-survey of road users' attitudes (ESRA), a large international traffic safety awareness survey.
- **Development of the Traffic Safety Culture and Performance Indicators**
  - International comparison regarding the correlation with fatal traffic accidents
  - Analysis on correlation with traffic accident reduction targets





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