



Road Maintenance and
Transportation Organization

**CROSS/
ROADS**
LINKING MOBILITY SOLUTIONS



**IRF WORLD ROAD
MEETING 2017**

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A New model to Identify High- Risk Corridors for Safety Measures within Iranian Roads Network

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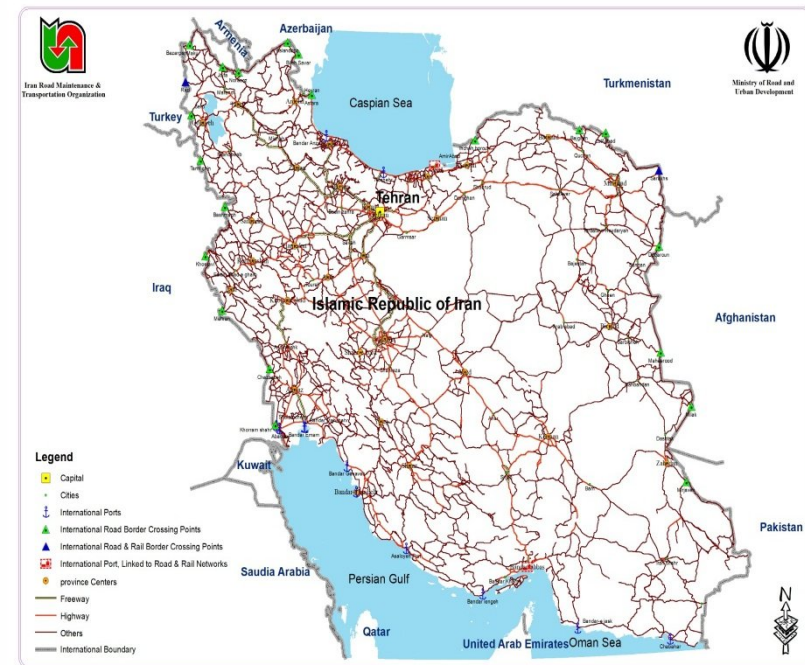
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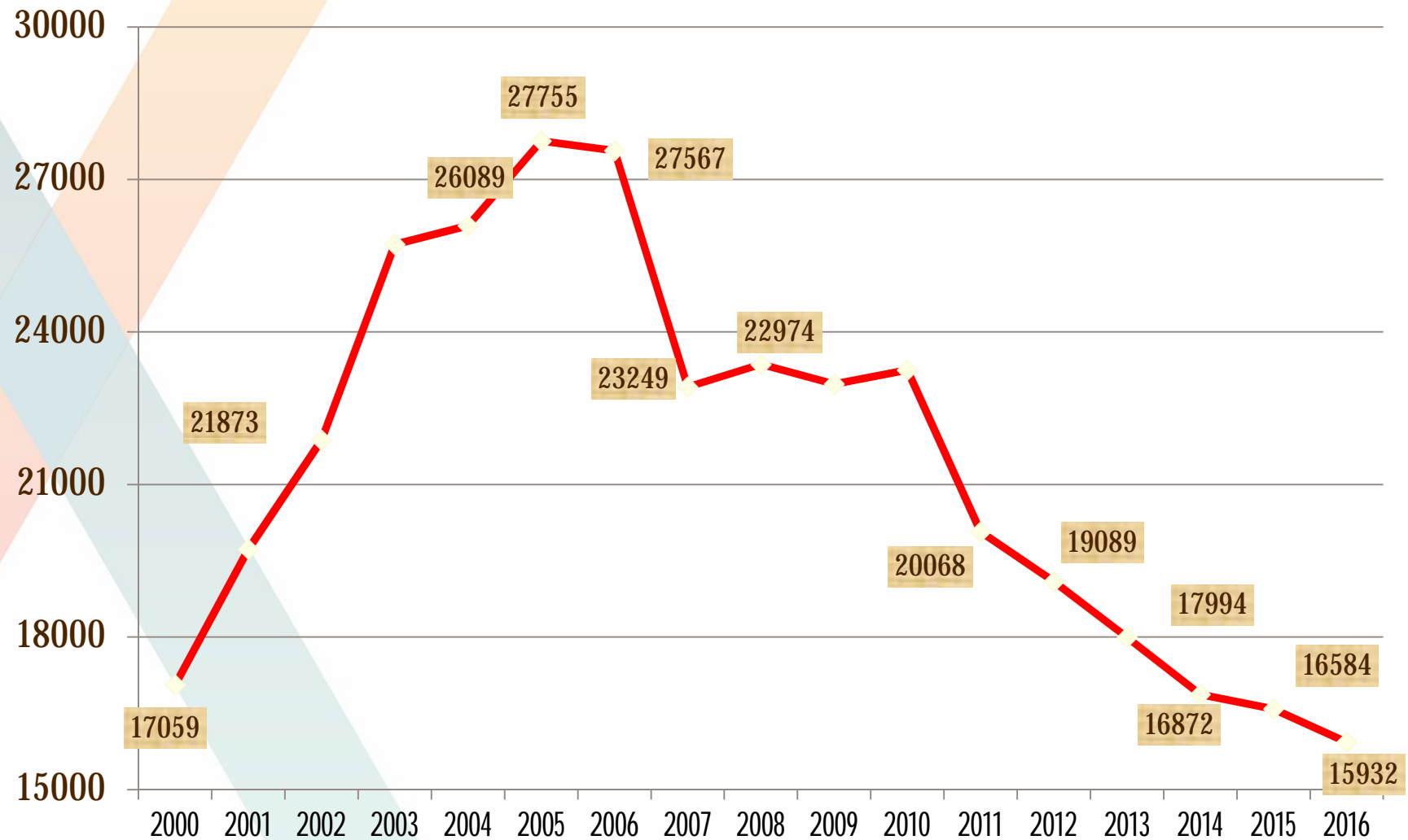
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Introduction

- ❑ The length of Iran's roads network : 215000 km
- Suburban Roads : 86000 km
- Rural(village) Roads : 129000 km
- ❑ Total Accidents No. in 2016 : 104000
- ❑ Total fatalities : About 16000 people
- ❑ Road fatalities : About 11500 people
- ❑ Fatalities rate in 2010-2016 :
- 6% Annual Average



Fatalities of Driving Accidents in Iran(2000-2016)



Continued...

- The main (arteries) Roads : 40000 km → 80% of Accidents



- Assessment of accidents in this widespread network calls for a budget, time, and many facilities, and thus prioritization of roads for analyzing accidents and safety actions is the goal of this study.

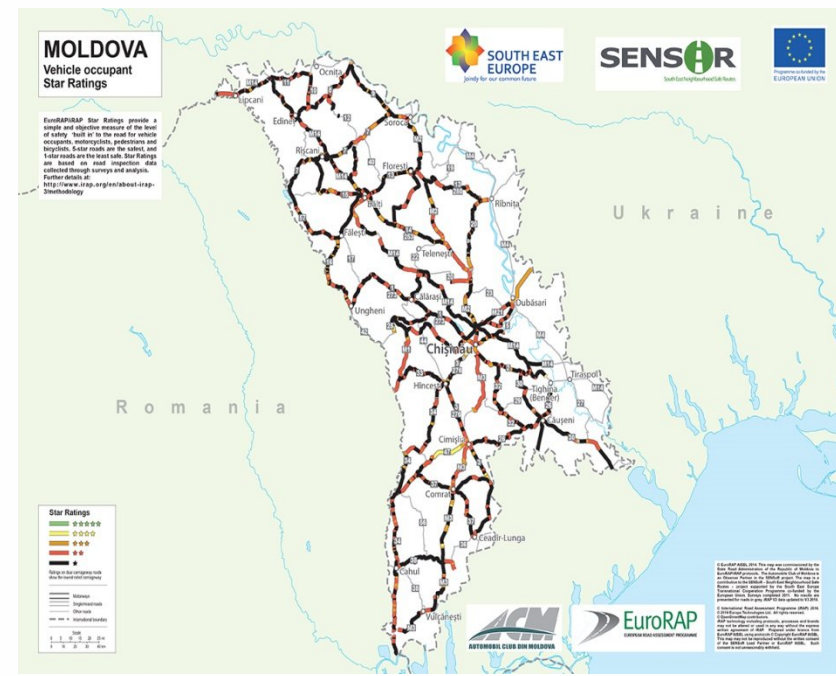


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International Practices

■ European Road Assessment Program (Euro RAP) :

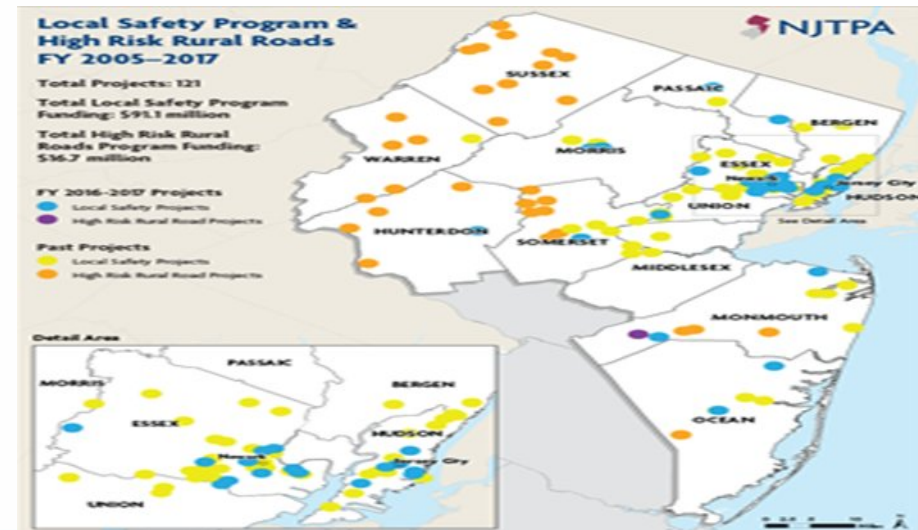
- ✓ Providing Map for Road Safety Risk
- ✓ *Performance Tracking*
- ✓ *Road Performance Scoring*



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Continued...

- ❖ **United States' Road Performance Scoring Plan :**
- ✓ Manual for Selecting : Safety Improvement on High Risk Rural Roads
- ✓ Local Roadway Safety : A manual for California's Local Road Owners



Methodology

A. Variables of Study

- This study prioritized the corridors according to statistical data on accidents involving fatalities
 1. **The accident severity (index P)** : index of fatal (coefficient: 9), injury (coefficient: 3), and damage (coefficient: 0.5) accidents .
 2. **Accident density** (total accidents in each road divided by the road length).



B. Executive procedures

- **Collection of Accidents Data** (the number of fatal, injury and damage accidents) from traffic **police stations** in Iran provinces via **the RMTO provincial agencies**

No.	Roads introduced by the provincial administration	Length (km)	The accidents for the year of ...			Total
			Fatal	Injury	Damage	



The aforementioned process was continuously repeated in four consecutive years (2013 to 2016 of accident statistics) for 32 provincial agencies on the main arteries and roads.

Overall Status of Study Roads from 2013 to 2016

Year	Number of roads	Length (km)	Number of accidents
2016	581	37224	77825
2015	591	40390	81177
2014	529	36807	80150
2013	439	31112	83670

Sample: Information on accidents in main roads and arterial roads of Qom Province in 2016

No.	Road	Length (km)	The accidents for 2015			Total
			Fatal	Injury	Damage	
1	Qom-Tehran expressway	65	15	85	443	543
2	Qom-Kashan expressway	35	6	31	121	158
3	Saveh expressway	36	6	16	63	85
4	Garmsar	50	3	16	57	76
5	Qom-Arak ring road	12	5	38	175	218
6	Qom-Kashan ring road	9	2	38	75	115
7	Delijan	37	7	24	68	99
8	Arak- Salafchegan	18	4	15	81	100
9	Qom Salafchegan	40	8	44	166	218
10	Old Qom-Tehran road	63	6	22	79	107
11	Old Qom-Kashan road	35	2	17	42	61
12	Old Saveh road	40	2	12	62	76
13	Neyzar	45	3	11	35	49
14	Jafarieh	38	5	44	71	120
15	Dastjerd	38	1	1	3	5
16	Kuh Sefid	60	0	10	9	19
17	Kahak	25	5	15	45	65

Continued...

- ✓ **Realizing a databank for the accidents number on the studied roads**
- ✓ **Calculating of selected indicative variables and final scores for each roads**
- ✓ **On the other hand, due to multiplicity of errors in the accident data, the roads are prioritized in 50-road groups to allow for prioritization of roads**



Analysis & Results

Grouping of studied roads in terms of length and number of accidents & their shares in 2016

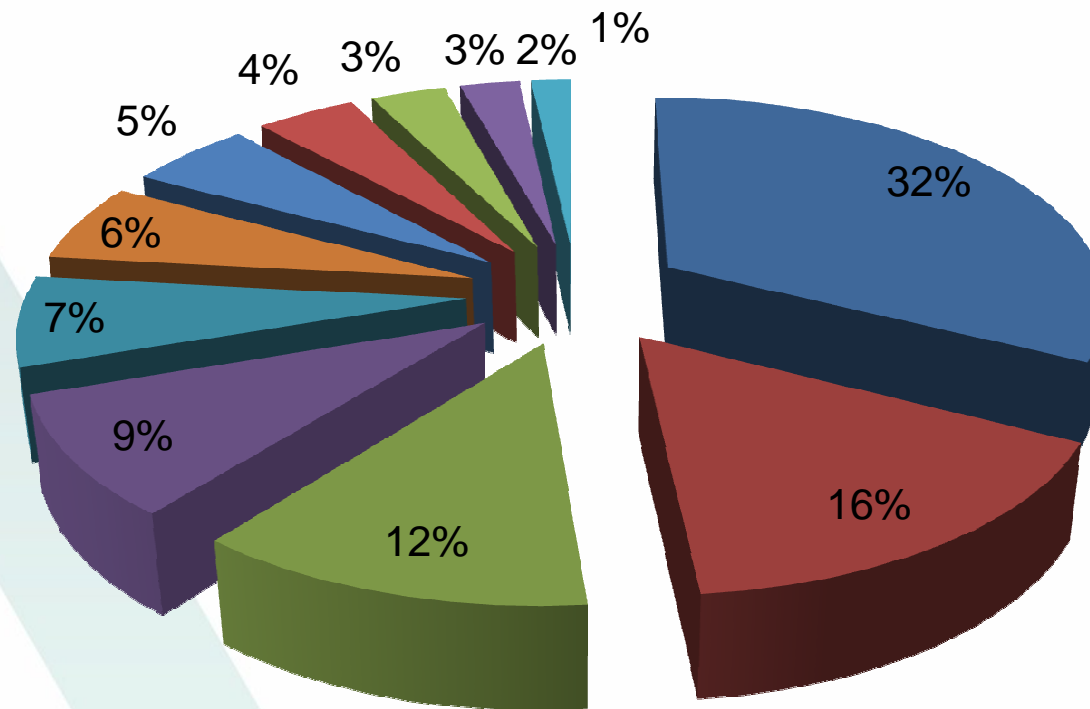
Accident(%)	Lentgh(%)	Group
32	9.4	1
16	9.7	2
12	8.3	3
9	9.4	4
7	9.2	5
6	8.1	6
5	8.8	7
4	8.3	8
3	8.3	9
3	8.7	10
2	8.7	11
0.5	3.0	12
100	100.0	Total

Accident(N)	Lentgh(Km)	Group
25178	3507	1
12431	3628	2
9393	3099	3
7114	3491	4
5357	3413	5
4716	3033	6
4145	3275	7
3340	3071	8
2508	3092	9
1989	3249	10
1322	3249	11
332	1117	12
77825	37224	Total

In 2016, 581 roads are grouped into 12 groups:

Groups 1, 2, and 3 (150 roads) account for app. 60% of the accidents

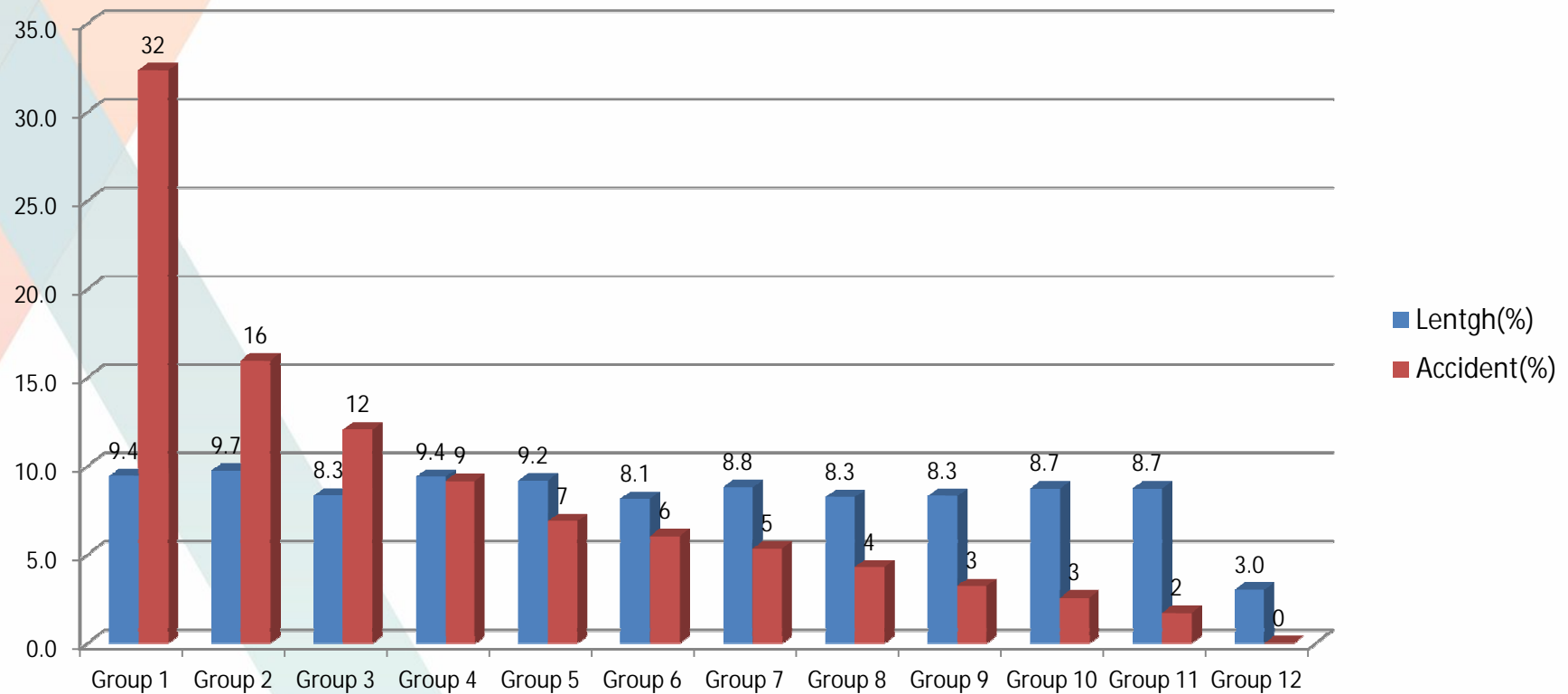
■ Group 1 ■ Group 2 ■ Group 3 ■ Group 4 ■ Group 5 ■ Group 6
■ Group 7 ■ Group 8 ■ Group 9 ■ Group 10 ■ Group 11 ■ Group 12



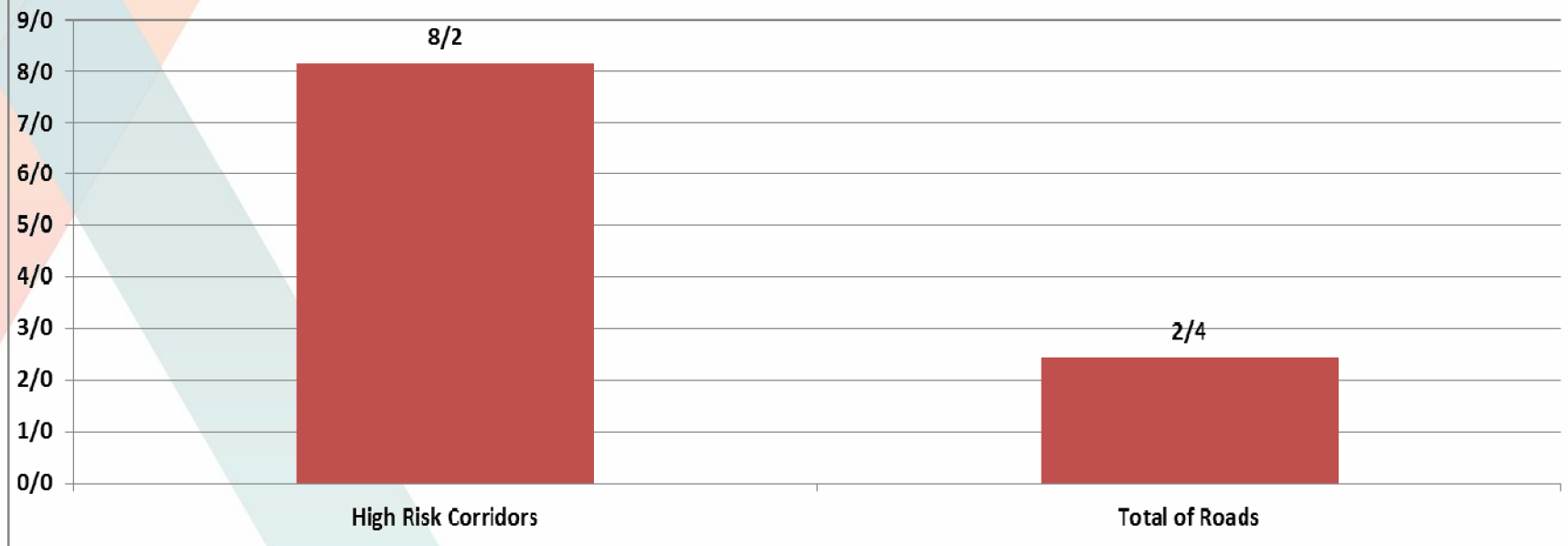
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In 2016 the length of these three groups form app. 25% of the reported roads and include over 60% of the accidents .

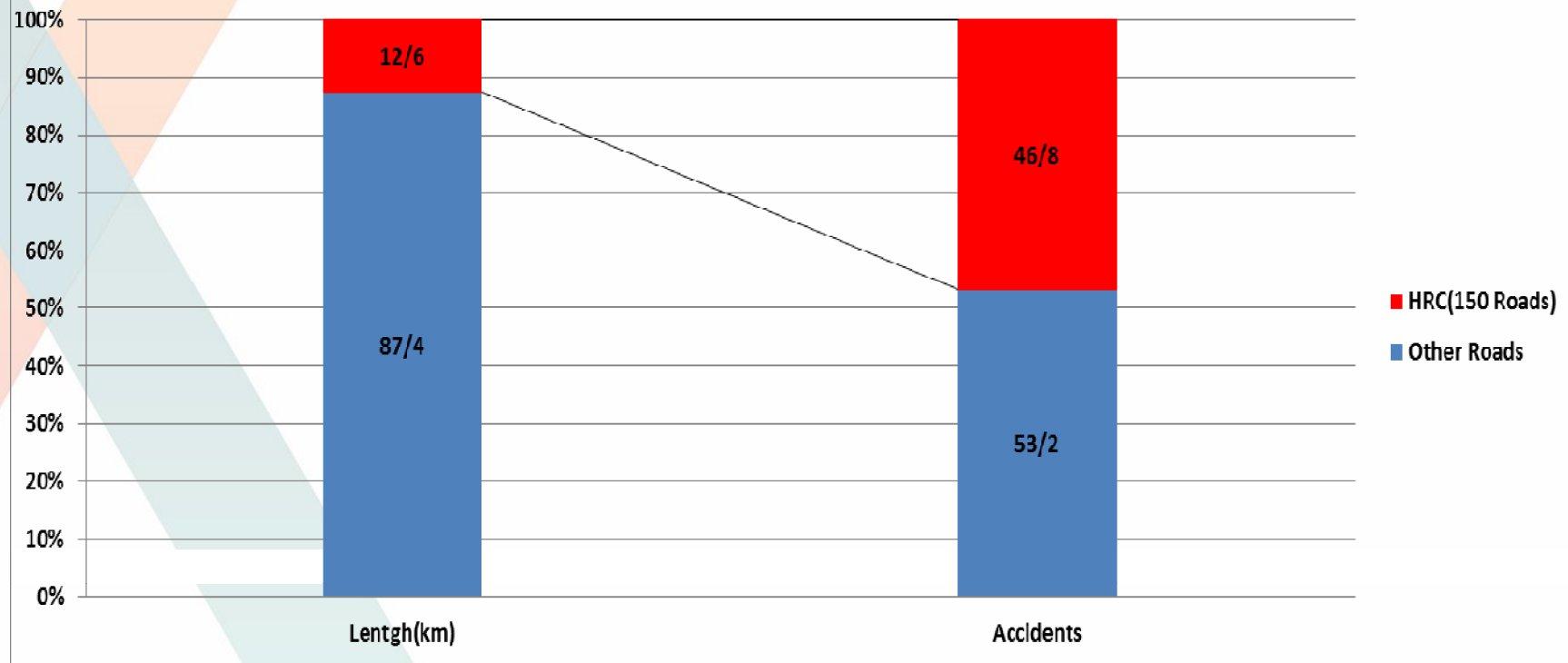
One fourth of Iran's main arterial roads (app. 10000 km) accounts for 60% of accidents



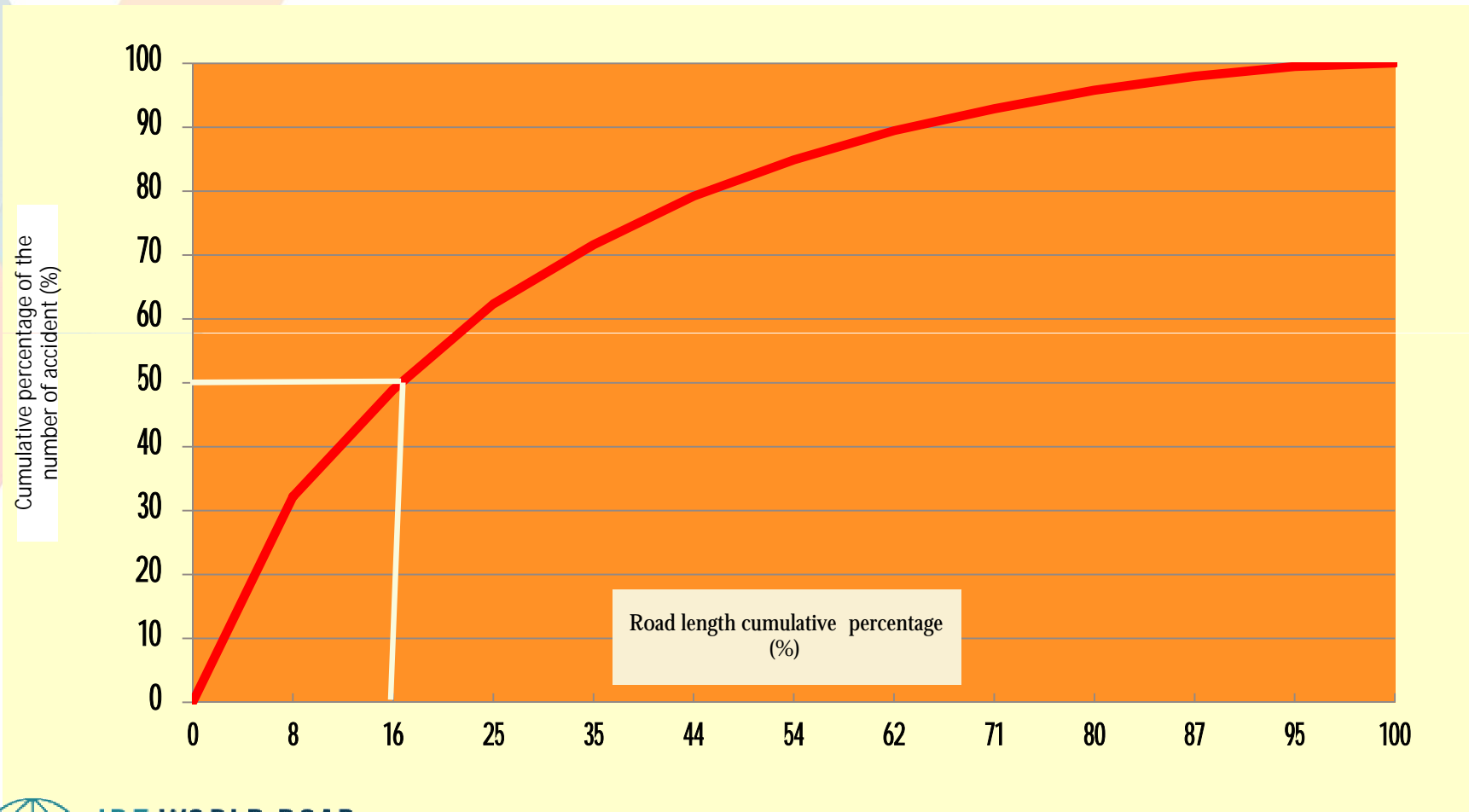
Density of Accident (per 1 km of Roads)



The Share of Length & Average Annual Accidents of HRC(150 Roads) in 2013-2016



This Figure depicts the cumulative percentage of accidents on these roads in relation to their length





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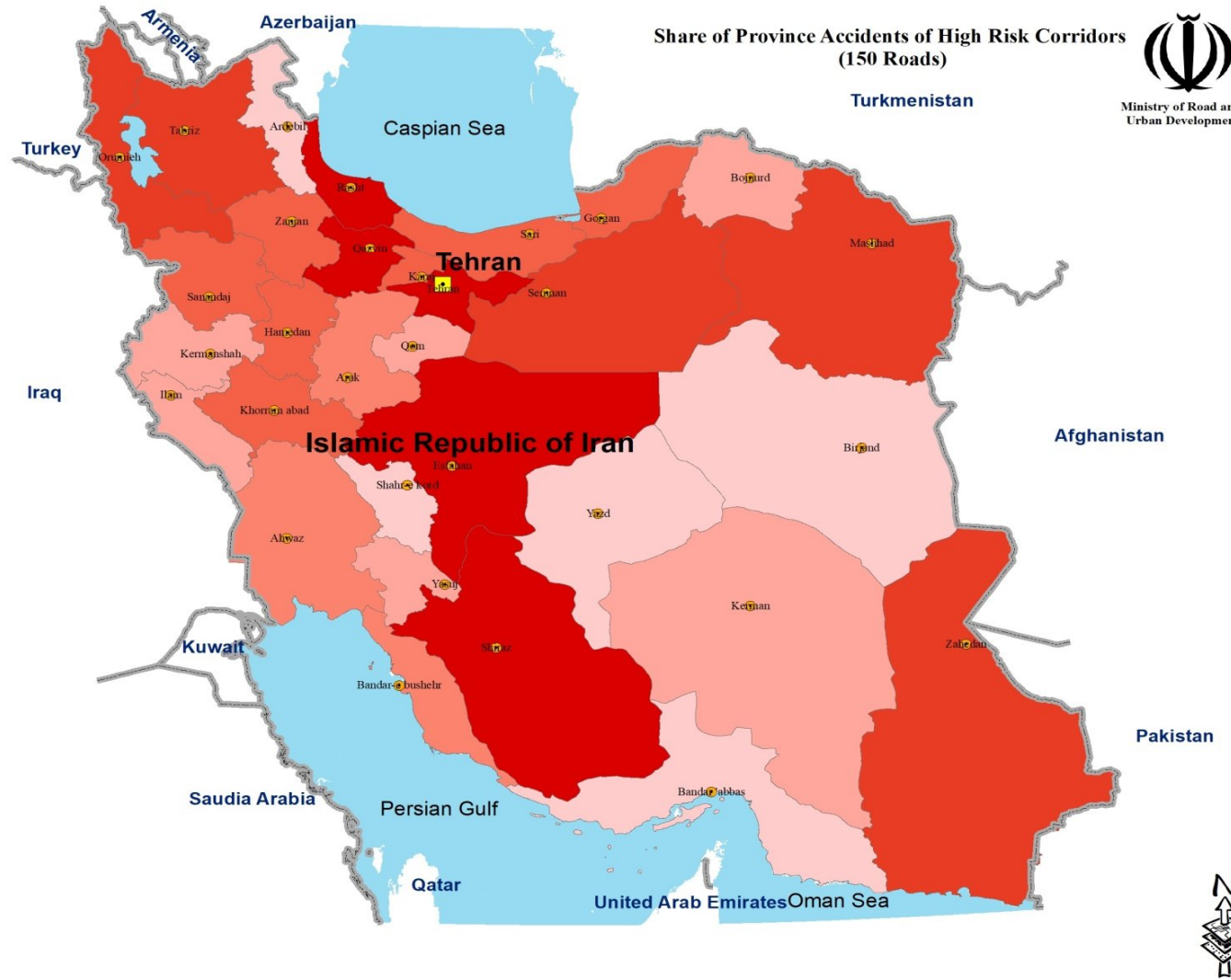


Ministry of Road and Urban Development

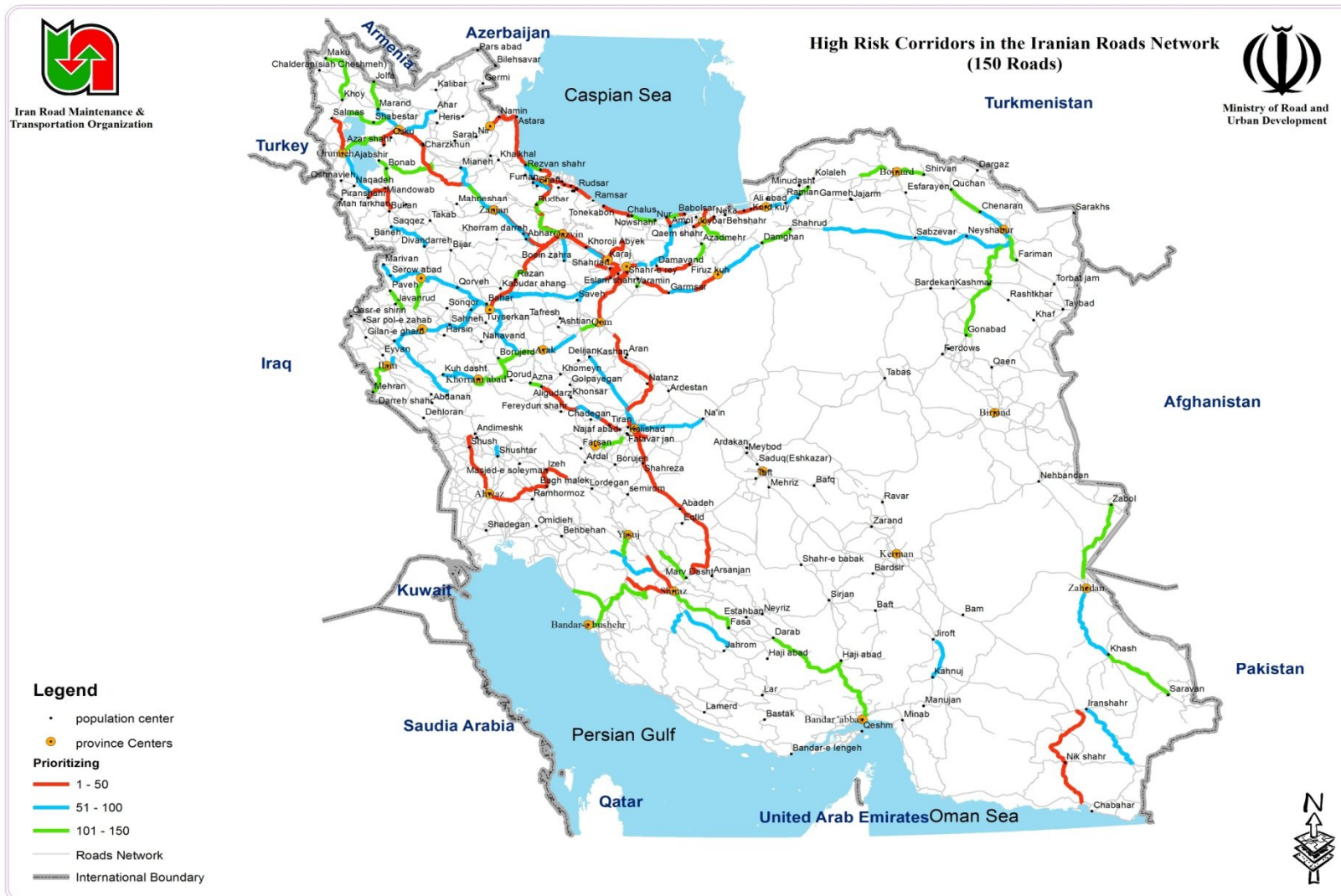
Share of Province Accidents of High Risk Corridors (150 Roads)

Legend

- Capital
- province Centers
- International Boundary
- Accident Rate**
- 0.0
- 0.1 - 2.0
- 2.1 - 2.9
- 3.0 - 4.0
- 4.1 - 5.0
- 5.1 - 8.8



Geographical position of the three groups of Iran's high risk roads in GIS



Conclusion

- ❖ the country's main arteries (with a length of approximately 40000 km) → 80% Accidents
- ❖ The main **arteries** roads in the first three groups (150 roads) in four years :
 - ✓ 25% of main arterial roads length (10000 km)
 - ✓ 60% of the accidents
- ❖ the high risk roads are situated around Tehran (Capital) and other metropolises, and other centers of population in North and West of Iran .



Importance this Study :

Allocation of resources including budget and credit resources, facilities, and ITS equipment , Inspection and examination of safety of roads, Traffic Police and concentrate of forces In **High Risk Corridors** .



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IS NO ACCIDENT**

World Health Day 2004



World Health
Organization



**L'ACCIDENT DE
LA ROUTE N'EST
PAS UNE FATALITE**

Journée mondiale de la Santé 2004



Organisation
mondiale de la Santé



**LA SEGURIDAD VIAL
NO ES ACCIDENTAL**

Día Mundial de la Salud 2004



Organización
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