

# GBD PROFILE: TUNISIA

## GLOBAL BURDEN OF DISEASES, INJURIES, AND RISK FACTORS STUDY 2010

The Global Burden of Disease Study 2010 (GBD 2010) is a collaborative project of nearly 500 researchers in 50 countries led by the Institute for Health Metrics and Evaluation (IHME) at the University of Washington. It is the largest systematic scientific effort in history to quantify levels and trends of health loss due to diseases, injuries, and risk factors. GBD serves as a global public good to inform evidence-based policymaking and health systems design.

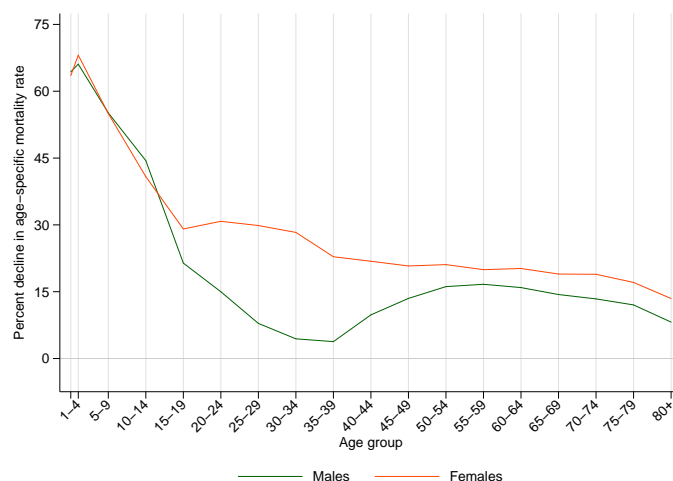
### PROFILE OVERVIEW

- In terms of the number of years of life lost (YLLs) due to premature death in Tunisia, ischemic heart disease, road injury, and cerebrovascular disease were the highest ranking causes in 2010.
- Of the 25 most important causes of burden, as measured by disability-adjusted life years (DALYs), diarrheal diseases showed the largest decrease, falling by 80% from 1990 to 2010.
- The leading risk factor in Tunisia is dietary risks.

### ALL-CAUSE MORTALITY RATE

- This chart shows the decline in mortality rate at every age range. The higher points on the chart indicate that declines in mortality rates were faster in those age groups between 1990 and 2010.
- The greatest reductions in all-cause mortality rate were experienced by females aged 1-4 years (68%). Males aged 35-39 years saw the smallest decrease in mortality rate (4%).

Percent decline in age-specific mortality rate by sex from 1990-2010 in Tunisia



### CAUSES OF PREMATURE DEATH

Years of life lost (YLLs) quantify premature mortality by weighting younger deaths more than older deaths.

Ranks for top 25 causes of YLLs 1990-2010, Tunisia

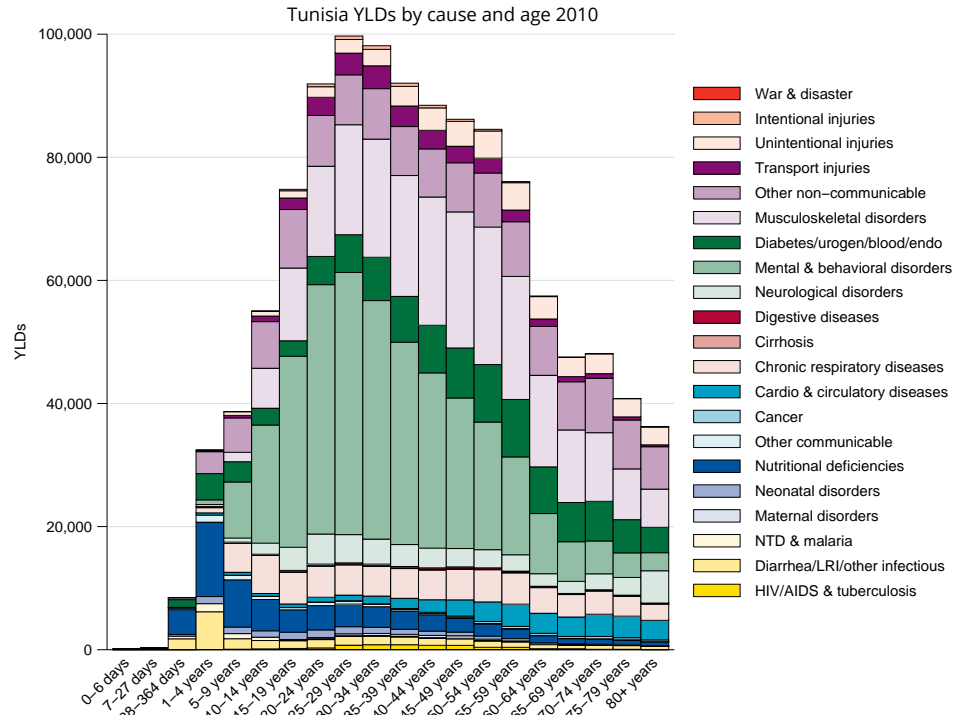
# YLLs in thousands (% of total)	Rank and disorder 1990	Rank and disorder 2010	# YLLs in thousands (% of total)	% change
160 (9.1%)	1 Ischemic heart disease	1 Ischemic heart disease	217 (16.3%)	35
164 (9.4%)	2 Protein-energy malnutrition	2 Road injury	131 (9.8%)	14
154 (8.8%)	3 Congenital anomalies	3 Stroke	121 (9.0%)	16
133 (7.6%)	4 Preterm birth complications	4 Congenital anomalies	67 (5.0%)	-56
125 (7.1%)	5 Diarrheal diseases	5 Preterm birth complications	67 (5.0%)	-51
114 (6.5%)	6 Road injury	6 Diabetes	40 (3.0%)	129
111 (6.4%)	7 Lower respiratory infections	7 Lower respiratory infections	38 (2.8%)	-66
104 (5.9%)	8 Stroke	8 Protein-energy malnutrition	48 (3.6%)	-71
41 (2.3%)	9 Mechanical forces	9 Lung cancer	35 (2.6%)	51
36 (2.1%)	10 Neonatal encephalopathy	10 HIV/AIDS	32 (2.4%)	2,257
26 (1.5%)	11 Other cardio & circulatory	11 Other cardio & circulatory	27 (2.1%)	6
23 (1.3%)	12 Lung cancer	12 Hypertensive heart disease	25 (1.9%)	36
19 (1.1%)	13 Meningitis	13 COPD	20 (1.5%)	10
21 (1.2%)	14 Neonatal sepsis	14 Chronic kidney disease	20 (1.5%)	247
19 (1.1%)	15 COPD	15 Breast cancer	20 (1.5%)	103
18 (1.0%)	16 Hypertensive heart disease	16 Mechanical forces	22 (1.6%)	-48
19 (1.1%)	17 Syphilis	17 Colorectal cancer	18 (1.3%)	103
18 (1.0%)	18 Rheumatic heart disease	18 Bladder cancer	17 (1.3%)	55
18 (1.0%)	19 Diabetes	19 Neonatal encephalopathy	18 (1.3%)	-51
12 (0.7%)	20 Drowning	20 Cirrhosis	17 (1.2%)	53
12 (0.7%)	21 Cardiomyopathy	21 Diarrheal diseases	15 (1.1%)	-89
12 (0.7%)	22 Asthma	22 Neonatal sepsis	15 (1.1%)	-27
12 (0.7%)	23 Fire	23 Cardiomyopathy	12 (0.9%)	1
11 (0.6%)	24 Cirrhosis	24 Rheumatic heart disease	11 (0.8%)	-38
11 (0.6%)	25 Bladder cancer	25 Self-harm	10 (0.8%)	94
	27 Breast cancer	26 Asthma		
	28 Colorectal cancer	30 Drowning		
	35 Chronic kidney disease	33 Fire		
	40 Self-harm	35 Meningitis		
	69 HIV/AIDS	50 Syphilis		

This chart shows the change in the top 25 causes of YLLs due to premature mortality from 1990 to 2010. Solid lines indicate a cause has moved up in rank or stayed the same. Broken lines indicate a cause has moved down in rank. The causes are color coded by blue for non-communicable diseases, green for injuries, and red for communicable, maternal, neonatal, and nutritional causes of death.

## YEARS LIVED WITH DISABILITY (YLDs)

Years lived with disability (YLDs) are estimated by weighting the prevalence of different conditions based on severity. The top five leading causes of YLDs in Tunisia are major depressive disorder, low back pain, diabetes mellitus, iron-deficiency anemia, and neck pain.

The size of the colored portion in each bar represents the number of YLDs attributable to each cause. The height of each bar shows which age groups had the most YLDs in 2010. The causes are aggregated. For example, musculoskeletal disorders include low back pain and neck pain.

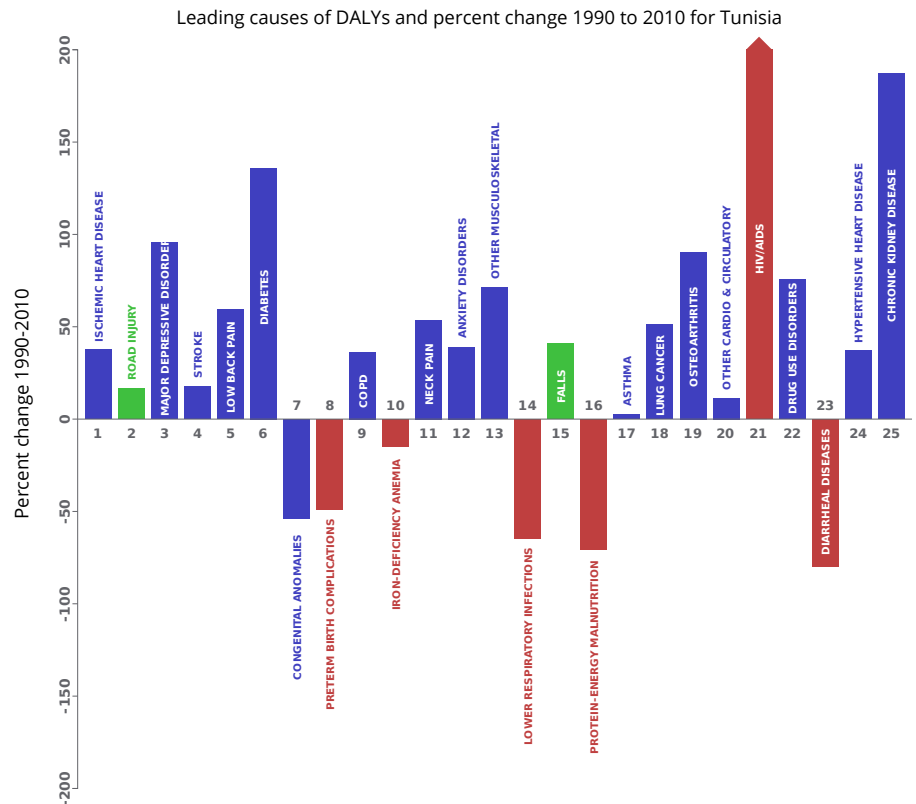


## DISABILITY-ADJUSTED LIFE YEARS (DALYs)

Disability-adjusted life years (DALYs) quantify both premature mortality (YLLs) and disability (YLDs) within a population. In Tunisia, the top three causes of DALYs in 2010 were ischemic heart disease, road injury, and major depressive disorder. The causes that were in the 10 leading causes of DALYs in 2010 and not 1990 were diabetes mellitus, chronic obstructive pulmonary disease, and iron-deficiency anemia.

The top 25 causes of DALYs are ranked from left to right in order of the number of DALYs they contributed in 2010. Bars going up show the percent by which DALYs have increased since 1990. Bars going down show the percent by which DALYs have decreased. Globally, non-communicable diseases and injuries are generally on the rise, while communicable, maternal, neonatal, and nutritional causes of DALYs are generally on the decline.

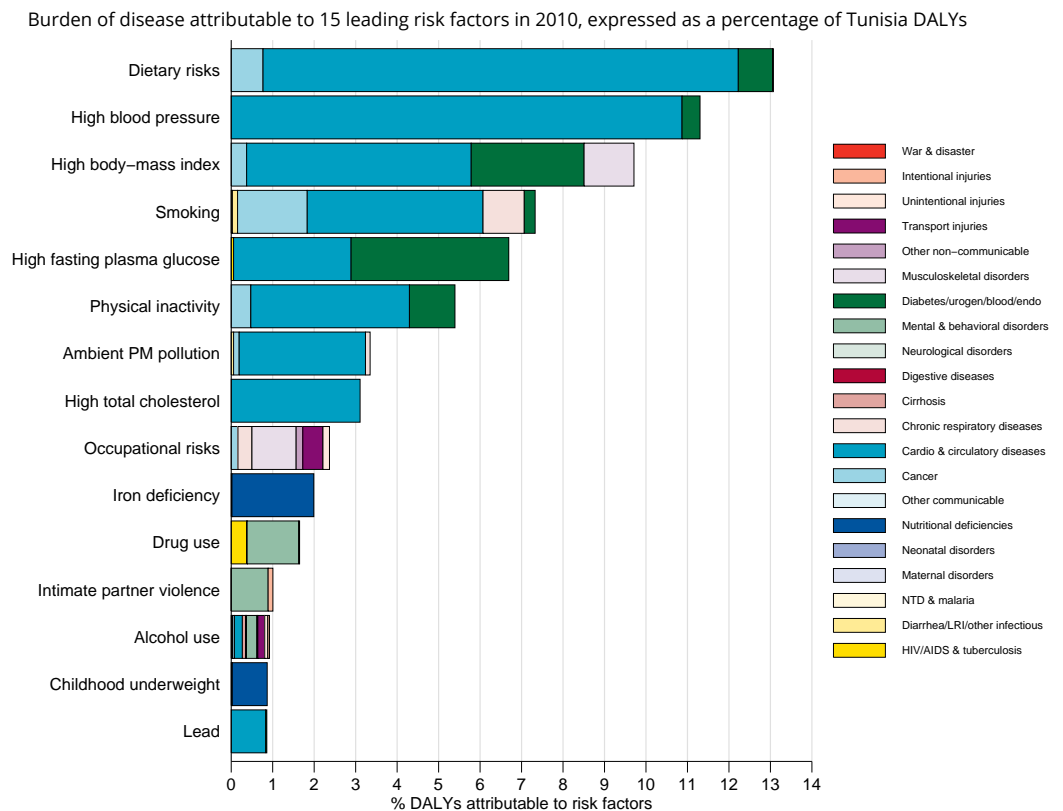
- Communicable, maternal, neonatal, and nutritional
- Non-communicable
- Injuries



## RISK FACTORS

Overall, the three risk factors that account for the most disease burden in Tunisia are dietary risks, high blood pressure, and high body-mass index. The leading risk factors for children under 5 and adults aged 15-49 years were childhood underweight and dietary risks, respectively, in 2010.

The graph shows the top 15 risk factors for Tunisia. The colored portion of each bar represents the specific diseases attributable to that risk factor while bar size represents the percentage of DALYs linked to specific risk factors.



## COUNTRY BENCHMARKING OF BURDEN OF DISEASE

Understanding the relative performance of Tunisia against other comparator countries provides key insight into public health successes and areas where Tunisia might be falling behind. The table identifies Tunisia's rank across 14 other comparator countries, selected and ordered by income per capita, for five metrics of interest, with 1 indicating the best rank and 15 indicating the worst rank.

- Age-standardized rates are used to make meaningful comparisons across time by adjusting for changes in population size and age structure.
- Life expectancy incorporates mortality, and health-adjusted life expectancy further incorporates years lived in less than ideal health.
- In 2010, Tunisia ranked 2nd for age-standardized death rate and 4th for age-standardized YLD rate.

Age-standardized death rates, YLL rates, YLD rates, and life expectancy at birth and health-adjusted life expectancy at birth for 1990 and 2010, both sexes combined																				
Country	Age-standardized death rate (per 100,000)				Age-standardized YLL rate (per 100,000)				Age-standardized YLD rate (per 100,000)				Life expectancy at birth				Health-adjusted life expectancy at birth			
	1990		2010		1990		2010		1990		2010		1990		2010		1990		2010	
	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	Rate	Rank	LE	Rank	LE	Rank	HALE	Rank	HALE	Rank
Dominican Republic	765	8	683	11	23,701	10	18,385	9	12,154	6	12,232	12	70.8	9	73.7	11	60.9	9	62.2	11
Colombia	760	5	617	6	23,157	8	16,372	7	12,110	5	11,643	8	71.1	7	75	6	61.1	7	64.7	6
Dominica	831	11	669	10	24,475	11	19,240	11	12,486	11	13,022	13	70.3	10	73.8	10	60.2	11	61.5	12
Belize	765	7	805	13	20,556	3	21,887	13	12,951	14	13,377	14	72	3	71.2	13	61.2	6	59.4	14
Thailand	712	4	663	9	20,676	4	17,227	8	11,069	1	10,369	1	72.4	2	74.1	9	63.2	1	65.3	5
Peru	803	9	551	3	27,953	13	14,679	3	12,854	13	11,692	9	68.9	13	76.4	4	58.6	13	65.7	4
Azerbaijan	961	14	695	12	20,272	14	20,272	12	12,212	8	11,620	6	66.7	14	72.5	12	57.4	14	62.5	10
<b>Tunisia</b>	<b>698</b>	<b>2</b>	<b>541</b>	<b>2</b>	<b>21,287</b>	<b>5</b>	<b>13,716</b>	<b>2</b>	<b>11,328</b>	<b>3</b>	<b>11,199</b>	<b>4</b>	<b>72</b>	<b>4</b>	<b>76.4</b>	<b>3</b>	<b>62.2</b>	<b>3</b>	<b>66</b>	<b>3</b>
Ecuador	700	3	522	1	22,420	6	14,956	4	12,265	9	11,404	5	72	5	77	1	61.7	5	66.4	1
Bosnia and Herzegovina	834	12	584	5	19,064	1	12,248	1	12,186	7	11,057	2	71.9	6	76.5	2	61.8	4	66.3	2
Algeria	762	6	584	4	23,346	9	15,484	6	12,395	10	12,215	11	70.9	8	75.5	5	60.3	10	64.2	8
El Salvador	809	10	661	8	26,931	12	18,474	10	12,585	12	11,781	10	69.6	12	74.2	8	59.5	12	63.9	9
Albania	666	1	653	7	19,166	2	15,110	5	11,609	4	11,628	7	73.1	1	74.9	7	63	2	64.6	7
Ukraine	913	13	917	14	22,976	7	23,559	14	11,316	2	11,159	3	70	11	69.7	14	60.9	8	60.8	13
Marshall Islands	1,270	15	1,309	15	36,253	15	36,337	15	14,368	15	13,968	15	63.9	15	63.9	15	54	15	54.4	15

## COUNTRY BENCHMARKING OF BURDEN OF DISEASE, CONTINUED

This figure shows the rank of Tunisia relative to the same comparator countries for the leading causes of DALYs in 1990 (top) and 2010 (bottom).

- The columns are ordered by the absolute number of DALYs in Tunisia for that particular year, with greatest burden on the left.
- The numbers indicate the rank across countries for each cause in terms of age-standardized DALY rates, with 1 as the best performance and 15 as the worst.

Ranking of leading age-standardized rates of disability-adjusted life years (DALYs) relative to comparator countries in 1990																											
Country	Ischemic heart disease	Protein-energy malnutrition	Congenital anomalies	Diarrheal diseases	Preterm birth complications	Road injury	Lower respiratory infections	Stroke	Major depressive disorder	Low back pain	Iron-deficiency anemia	COPD	Neonatal encephalopathy	Mechanical forces	Diabetes	Asthma	Anxiety disorders	Other cardio & circulatory	Falls	Neck pain	Other musculoskeletal	Lung cancer	Meningitis	Hypertensive heart disease	Neonatal sepsis		
Dominican Republic	10	8	11	13	13	6	6	9	13	1	15	3	12	6	12	10	11	6	2	10	4	4	14	13	14		
Colombia	8	9	8	7	4	9	5	5	12	9	10	9	10	4	3	8	12	7	1	5	13	9	7	12	5		
Dominica	3	3	6	3	15	5	8	6	9	3	11	1	13	5	14	13	5	15	5	11	7	5	5	15	15		
Belize	7	6	2	6	7	2	10	7	11	4	14	2	7	10	11	12	14	4	6	5	3	10	7	8	8		
Thailand	6	5	9	5	5	11	4	4	3	2	6	12	2	2	5	6	2	10	3	3	1	11	3	11	6		
Peru	1	13	4	14	11	4	14	1	6	7	12	4	14	13	4	11	13	3	6	7	11	6	9	2	13		
Azerbaijan	15	7	13	10	9	10	15	10	4	10	9	11	15	15	7	2	7	2	10	14	9	12	13	10	2		
<b>Tunisia</b>	<b>12</b>	<b>15</b>	<b>14</b>	<b>9</b>	<b>10</b>	<b>15</b>	<b>3</b>	<b>8</b>	<b>7</b>	<b>6</b>	<b>5</b>	<b>7</b>	<b>3</b>	<b>14</b>	<b>6</b>	<b>9</b>	<b>6</b>	<b>8</b>	<b>8</b>	<b>2</b>	<b>2</b>	<b>10</b>	<b>4</b>	<b>9</b>	<b>7</b>		
Ecuador	2	12	7	12	3	13	11	2	5	5	13	13	6	11	9	4	10	5	14	9	10	2	6	8	9		
Bosnia and Herzegovina	13	2	5	2	6	1	1	15	10	12	2	10	5	1	10	3	15	9	13	12	8	15	2	3	3		
Algeria	9	11	15	8	14	7	7	12	15	13	7	5	9	3	13	7	4	13	11	1	3	7	12	14	11		
El Salvador	4	10	10	15	12	14	9	3	14	8	8	8	11	9	8	14	9	4	7	8	14	1	8	5	12		
Albania	5	4	3	4	1	3	13	11	1	15	4	6	1	8	1	3	11	12	13	6	13	11	4	1			
Ukraine	14	1	12	1	2	12	2	13	2	14	3	14	4	12	2	5	1	1	9	15	12	14	1	1	4		
Marshall Islands	11	14	1	11	8	8	12	14	8	11	1	15	8	7	15	15	8	12	15	4	15	8	15	6	10		
Ranking of leading age-standardized rates of disability-adjusted life years (DALYs) relative to comparator countries in 2010																											
Country	Ischemic heart disease	Road injury	Major depressive disorder	Stroke	Low back pain	Diabetes	Congenital anomalies	Preterm birth complications	COPD	Iron-deficiency anemia	Neck pain	Anxiety disorders	Other musculoskeletal	Lower respiratory infections	Falls	Protein-energy malnutrition	Asthma	Lung cancer	Osteoarthritis	Other cardio & circulatory	HIV/AIDS	Drug use disorders	Diarrheal diseases	Hypertensive heart disease	Chronic kidney disease		
Dominican Republic	11	13	5	9	1	11	14	14	2	14	7	8	3	7	6	7	10	7	5	2	11	10	14	13	10		
Colombia	5	6	13	4	10	4	12	8	13	11	5	14	13	5	1	13	7	6	12	4	12	5	10	9	5		
Dominica	3	8	10	5	4	13	9	13	1	12	8	4	9	6	11	4	14	4	6	15	8	13	4	15	7		
Belize	8	11	9	7	3	14	6	7	4	15	6	3	10	9	9	8	12	8	3	11	15	14	11	12	12		
Thailand	4	15	8	6	2	7	3	4	14	3	3	2	4	11	3	3	8	12	1	7	13	1	5	5	11		
Peru	2	3	6	2	8	3	4	9	6	10	9	12	11	14	2	10	11	3	10	6	7	11	7	2	6		
Azerbaijan	14	2	3	11	9	8	11	12	11	9	12	7	7	15	7	6	2	10	7	10	4	12	9	11	8		
<b>Tunisia</b>	<b>10</b>	<b>14</b>	<b>14</b>	<b>8</b>	<b>6</b>	<b>9</b>	<b>13</b>	<b>10</b>	<b>9</b>	<b>7</b>	<b>2</b>	<b>5</b>	<b>1</b>	<b>2</b>	<b>5</b>	<b>15</b>	<b>9</b>	<b>11</b>	<b>13</b>	<b>8</b>	<b>6</b>	<b>4</b>	<b>6</b>	<b>10</b>	<b>3</b>		
Ecuador	1	12	4	3	5	6	7	6	7	13	11	13	8	12	8	12	3	1	9	3	10	6	12	7	13		
Bosnia and Herzegovina	9	1	1	12	12	5	1	3	12	1	15	6	6	1	15	2	4	15	8	9	2	2	1	1	2		
Algeria	7	5	15	10	13	12	8	15	5	8	1	15	2	4	12	11	6	5	14	14	5	8	8	14	9		
El Salvador	6	10	11	1	7	10	10	5	3	6	10	9	14	8	4	9	13	2	11	5	9	3	13	6	14		
Albania	12	7	7	13	15	1	2	1	8	2	13	11	5	10	14	5	1	14	4	13	3	7	2	4	4		
Ukraine	15	9	2	14	14	2	15	2	10	5	14	1	12	3	13	1	5	13	2	1	14	9	3	3	1		
Marshall Islands	13	4	12	15	11	15	5	11	15	4	4	10	15	13	10	14	15	9	15	12	1	15	15	8	15		
Ranking Legend	1 - 3			4 - 7			8 - 11			12 - 15																	