

# GBD PROFILE: PAKISTAN

## 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.

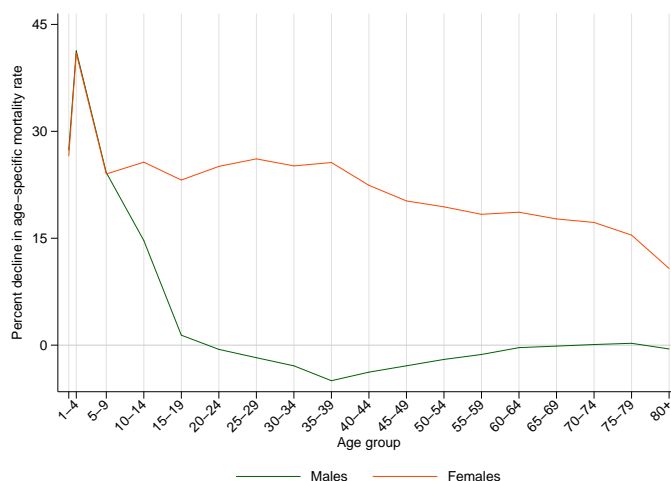
### PROFILE OVERVIEW

- In terms of the number of years of life lost (YLLs) due to premature death in Pakistan, lower respiratory infections, neonatal encephalopathy (birth asphyxia and birth trauma), and diarrheal diseases 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 35% from 1990 to 2010.
- The leading risk factor in Pakistan is household air pollution from solid fuels.

### ALL-CAUSE MORTALITY RATE

- This chart shows the change in mortality rate at every age range. The points above 0 on the chart indicate positive declines in the all-cause mortality rate, while points below 0 indicate an increase in mortality rate between 1990 and 2010.
- The greatest reductions in all-cause mortality rate were experienced by males aged 1-4 years (41%). Males aged 35-39 years saw the largest increase in mortality rate (5%).

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



### 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, Pakistan

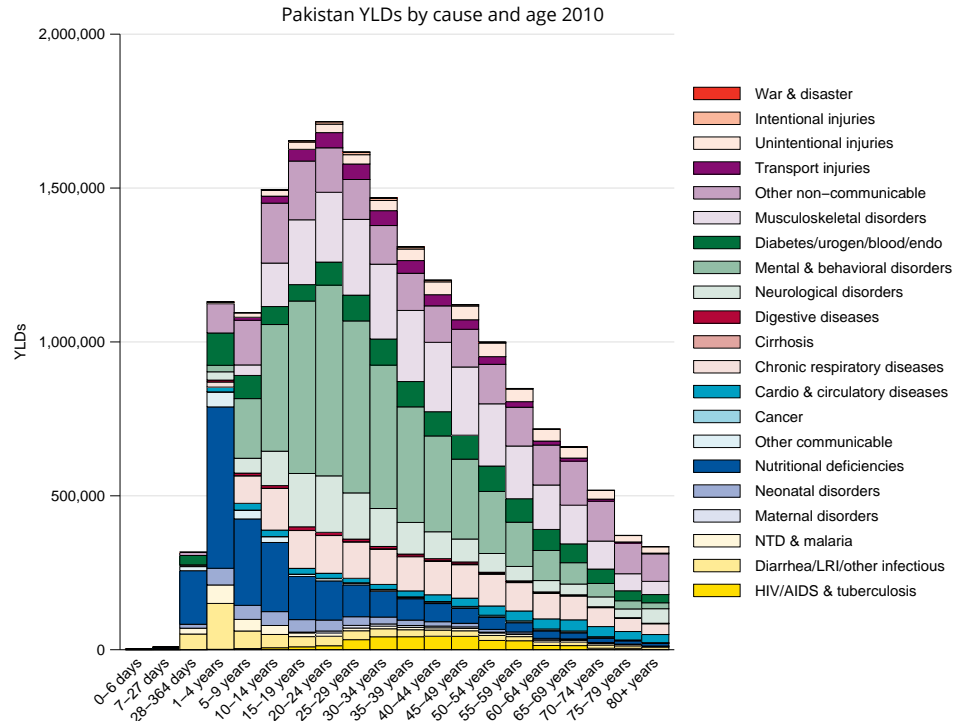
# YLLs in thousands (% of total)	Rank and disorder 1990	Rank and disorder 2010	# YLLs in thousands (% of total)	% change
8,340 (13.9%)	1 Diarrheal diseases	1 Lower respiratory infections	6,282 (10.7%)	-25
8,286 (13.8%)	2 Lower respiratory infections	2 Neonatal encephalopathy	5,302 (9.0%)	6
4,897 (8.2%)	3 Neonatal encephalopathy	3 Diarrheal diseases	5,267 (9.0%)	-37
4,460 (7.4%)	4 Preterm birth complications	4 Preterm birth complications	4,066 (6.9%)	-8
2,268 (3.8%)	5 Tuberculosis	5 Congenital anomalies	2,322 (4.0%)	2
2,255 (3.8%)	6 Congenital anomalies	6 Ischemic heart disease	2,293 (3.9%)	103
2,286 (3.8%)	7 Neonatal sepsis	7 Tuberculosis	2,139 (3.6%)	-7
2,177 (3.6%)	8 Tetanus	8 Neonatal sepsis	2,147 (3.7%)	-6
1,164 (1.9%)	9 Meningitis	9 Stroke	1,517 (2.6%)	71
1,130 (1.9%)	10 Ischemic heart disease	10 COPD	1,123 (1.9%)	20
1,260 (2.1%)	11 Measles	11 Meningitis	1,057 (1.8%)	-10
932 (1.6%)	12 COPD	12 Cirrhosis	1,041 (1.8%)	105
965 (1.6%)	13 Protein-energy malnutrition	13 Road injury	859 (1.5%)	78
881 (1.5%)	14 Stroke	14 Diabetes	827 (1.4%)	157
840 (1.4%)	15 Mechanical forces	15 Drowning	749 (1.3%)	17
771 (1.3%)	16 Encephalitis	16 Self-harm	728 (1.2%)	104
739 (1.2%)	17 Maternal disorders	17 Encephalitis	721 (1.2%)	-7
649 (1.1%)	18 Drowning	18 Mechanical forces	691 (1.2%)	-18
497 (0.8%)	19 Cirrhosis	19 Chronic kidney disease	628 (1.1%)	93
473 (0.8%)	20 Road injury	20 Interpersonal violence	608 (1.0%)	109
498 (0.8%)	21 Poisonings	21 Poisonings	593 (1.0%)	22
423 (0.7%)	22 Fire	22 Typhoid fevers	712 (1.2%)	46
407 (0.7%)	23 Syphilis	23 Maternal disorders	567 (1.0%)	-25
484 (0.8%)	24 Typhoid fevers	24 Protein-energy malnutrition	566 (1.0%)	-40
416 (0.7%)	25 Malaria	25 Fire	477 (0.8%)	12
	27 Self-harm	28 Tetanus		
	31 Chronic kidney disease	41 Syphilis		
	32 Diabetes	44 Malaria		
	34 Interpersonal violence	71 Measles		

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 Pakistan are major depressive disorder, iron-deficiency anemia, low back pain, chronic obstructive pulmonary disease, and migraine.

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.

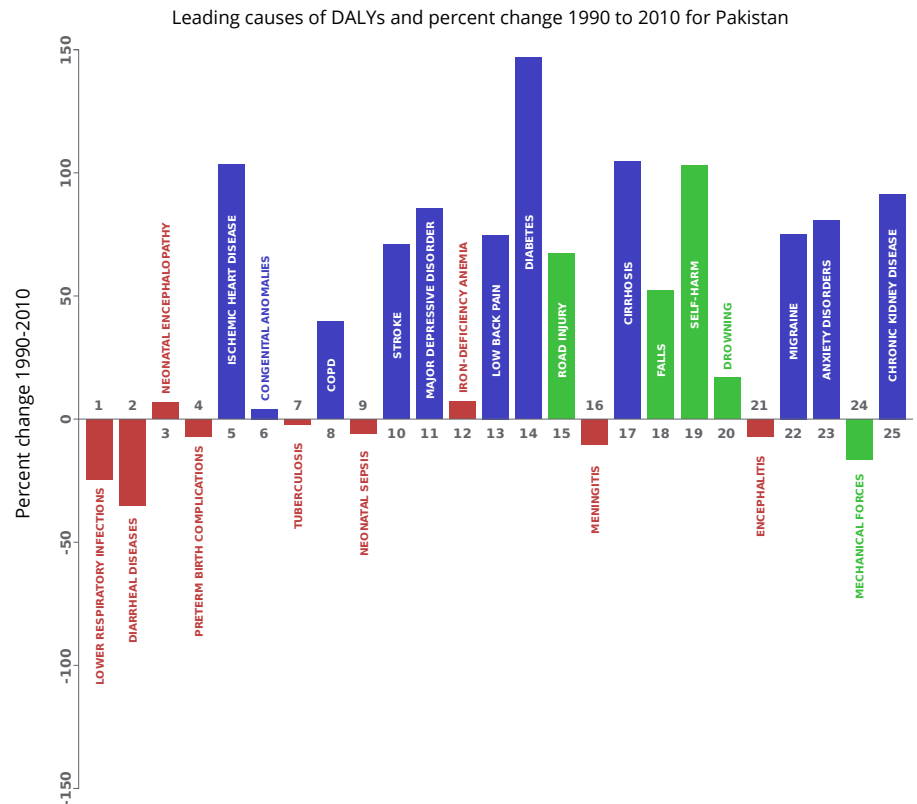


## DISABILITY-ADJUSTED LIFE YEARS (DALYs)

Disability-adjusted life years (DALYs) quantify both premature mortality (YLLs) and disability (YLDs) within a population. In Pakistan, the top three causes of DALYs in 2010 were lower respiratory infections, diarrheal diseases, and neonatal encephalopathy (birth asphyxia and birth trauma). Two causes that appeared in the 10 leading causes of DALYs in 2010 and not 1990 were ischemic heart disease and cerebrovascular disease.

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.

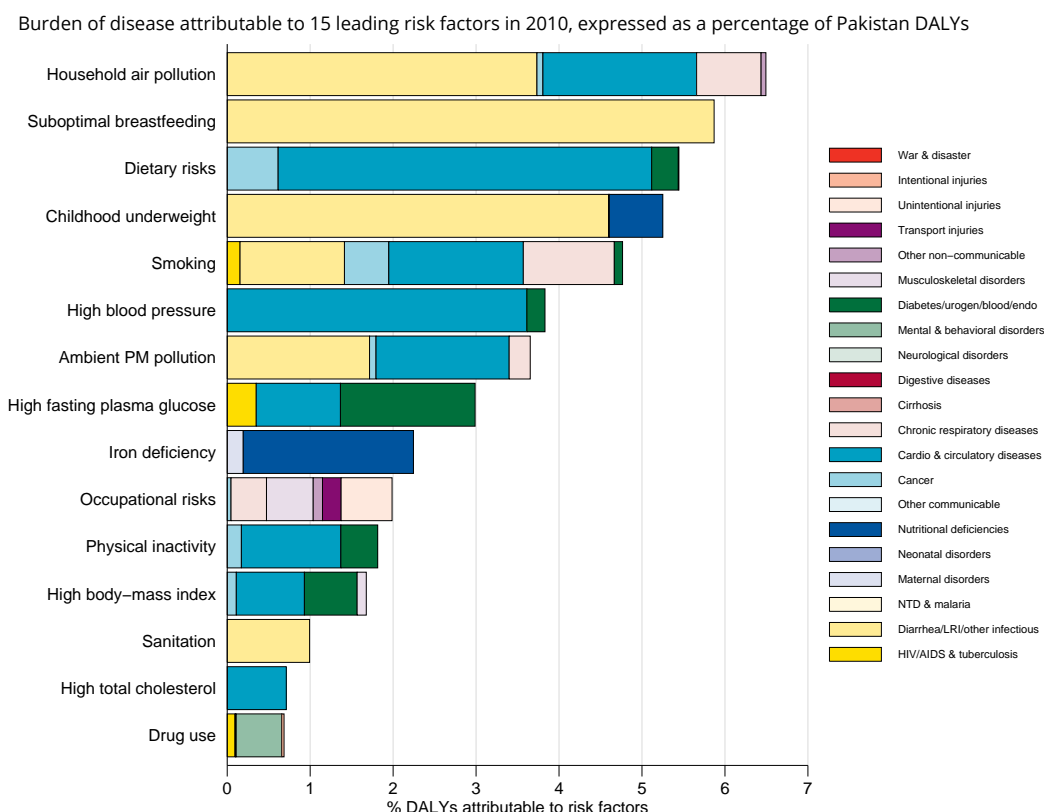
- Communicable, maternal, neonatal, and nutritional
- Non-communicable
- Injuries



## RISK FACTORS

Overall, the three risk factors that account for the most disease burden in Pakistan are household air pollution from solid fuels, suboptimal breastfeeding, and dietary risks. The leading risk factors for children under 5 and adults aged 15-49 years were childhood underweight and occupational risks, respectively, in 2010.

The graph shows the top 15 risk factors for Pakistan. 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 Pakistan against other comparator countries provides key insight into public health successes and areas where Pakistan might be falling behind. The table identifies Pakistan'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, Pakistan ranked 7th for age-standardized death rate and 10th for age-standardized YLL 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
Philippines	909	4	868	4	28,515	5	23,262	5	13,334	10	12,483	10	67.8	5	70.1	4	57.8	6	60.3	5
Mongolia	1,283	10	1,218	13	44,720	9	34,325	11	11,523	1	11,482	3	60.5	10	64.6	12	52.8	9	56.5	9
India	1,447	12	1,097	11	50,084	13	33,366	9	13,727	13	12,494	11	58.3	13	65.2	10	49.8	12	56.2	10
Vietnam	876	3	595	1	26,230	3	15,123	1	12,188	3	10,909	1	68.9	3	75.6	1	59.5	3	65.8	1
Moldova	1,000	6	912	6	26,698	4	22,769	4	11,653	2	11,362	2	68.1	4	70	5	59.3	4	61	4
Nicaragua	762	1	652	2	25,101	2	16,911	2	12,459	5	11,835	4	70.3	2	74.4	2	60.1	1	64	2
Palestine	794	2	694	3	23,225	1	18,413	3	12,827	7	12,639	12	70.6	1	73.2	3	59.9	2	62.2	3
<b>Pakistan</b>	<b>1,120</b>	<b>8</b>	<b>982</b>	<b>7</b>	<b>41,231</b>	<b>8</b>	<b>33,518</b>	<b>10</b>	<b>12,877</b>	<b>8</b>	<b>12,323</b>	<b>7</b>	<b>62.3</b>	<b>8</b>	<b>65.7</b>	<b>9</b>	<b>53.3</b>	<b>8</b>	<b>56.5</b>	<b>8</b>
Yemen	1,361	11	1,068	9	47,661	11	32,041	8	15,157	15	14,318	15	59.3	12	65.8	8	49.4	13	55.2	12
Uzbekistan	972	5	911	5	29,477	6	26,063	6	12,381	4	12,150	5	67.3	6	68.8	6	57.8	5	59.3	6
Solomon Islands	1,707	14	1,510	14	47,851	12	40,489	14	13,520	12	12,482	9	59.4	11	62	14	51.2	11	54	13
Papua New Guinea	1,990	15	1,700	15	64,195	15	49,553	15	14,891	14	13,793	13	53.8	15	58.7	15	45.7	15	50.4	15
Djibouti	1,180	9	1,129	12	45,440	10	38,655	13	13,493	11	14,182	14	60.6	9	63.2	13	51.6	10	53.5	14
Laos	1,532	13	1,094	10	56,031	14	34,746	12	13,297	9	12,323	6	56.2	14	64.7	11	48.3	14	55.9	11
Kyrgyzstan	1,047	7	999	8	33,446	7	30,037	7	12,606	6	12,336	8	65.5	7	66.9	7	56.2	7	57.6	7

## COUNTRY BENCHMARKING OF BURDEN OF DISEASE, CONTINUED

This figure shows the rank of Pakistan 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 Pakistan 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	Diarrheal diseases	Lower respiratory infections	Neonatal encephalopathy	Preterm birth complications	Tuberculosis	Congenital anomalies	Neonatal sepsis	Tetanus	COPD	Iron-deficiency anemia	Meningitis	Ischemic heart disease	Protein-energy malnutrition	Measles	Stroke	Major depressive disorder	Mechanical forces	Maternal disorders	Encephalitis	Low back pain	Road injury	Drowning	Falls	Cirrhosis	Diabetes
Philippines	3	8	1	6	12	4	1	7	9	7	4	6	9	10	5	10	2	8	4	13	1	4	2	1	4
Mongolia	4	13	14	10	6	10	5	4	6	1	11	13	5	4	15	1	14	7	13	10	13	13	10	12	1
India	14	6	11	15	13	5	15	13	15	15	10	8	14	13	3	3	9	11	15	8	9	7	12	5	7
Vietnam	5	3	2	4	9	8	4	8	7	8	7	1	6	12	7	2	8	5	5	2	4	15	4	8	3
Moldova	1	2	7	1	2	12	8	1	4	2	1	14	1	1	8	12	5	1	7	15	12	9	6	15	5
Nicaragua	11	4	9	9	5	9	12	6	2	3	3	5	7	5	4	13	6	6	2	4	3	3	1	4	11
Palestine	2	1	6	14	1	13	11	5	1	4	2	7	4	6	13	15	1	3	6	14	5	1	9	2	12
<b>Pakistan</b>	<b>12</b>	<b>7</b>	<b>15</b>	<b>13</b>	<b>10</b>	<b>11</b>	<b>14</b>	<b>14</b>	<b>14</b>	<b>12</b>	<b>9</b>	<b>4</b>	<b>8</b>	<b>11</b>	<b>1</b>	<b>4</b>	<b>13</b>	<b>9</b>	<b>14</b>	<b>1</b>	<b>2</b>	<b>5</b>	<b>13</b>	<b>7</b>	<b>6</b>
Yemen	15	14	3	8	8	15	6	11	5	14	8	11	10	8	9	14	12	12	12	10	2	7	3	13	13
Uzbekistan	6	9	13	2	4	2	2	2	3	10	6	15	3	2	10	7	7	2	9	6	11	8	5	11	8
Solomon Islands	8	5	4	3	11	1	9	10	11	5	13	9	11	7	14	5	4	10	1	9	7	6	14	13	15
Papua New Guinea	9	15	5	5	15	3	10	12	10	9	14	2	13	9	2	6	11	15	3	7	8	11	15	14	14
Djibouti	10	11	10	12	7	6	13	9	8	11	15	3	15	15	6	11	3	14	11	11	15	10	3	6	9
Laos	13	12	8	11	14	14	7	15	12	13	12	10	12	14	11	9	15	13	10	3	6	12	8	9	10
Kyrgyzstan	7	10	12	7	3	7	3	3	13	6	5	12	2	3	12	8	10	4	8	5	14	14	11	10	2
Ranking of leading age-standardized rates of disability-adjusted life years (DALYs) relative to comparator countries in 2010																									
Country	Lower respiratory infections	Diarrheal diseases	Neonatal encephalopathy	Preterm birth complications	Ischemic heart disease	Congenital anomalies	Tuberculosis	COPD	Neonatal sepsis	Stroke	Major depressive disorder	Iron-deficiency anemia	Low back pain	Diabetes	Road injury	Meningitis	Cirrhosis	Falls	Self-harm	Drowning	Encephalitis	Migraine	Anxiety disorders	Mechanical forces	Chronic kidney disease
Philippines	6	6	4	8	9	8	12	8	6	7	10	7	12	11	2	6	3	2	3	4	6	8	6	1	10
Mongolia	9	5	12	7	14	9	7	9	4	15	6	2	6	2	14	9	14	6	10	9	12	12	5	15	11
India	5	13	11	15	7	6	9	15	15	3	3	13	8	5	12	11	6	15	15	8	15	14	4	9	2
Vietnam	2	3	1	2	1	2	3	6	2	6	2	1	3	1	8	3	4	4	4	14	4	10	1	7	4
Moldova	3	1	2	1	13	7	4	3	5	9	4	5	15	3	6	1	15	8	14	11	7	7	2	2	1
Nicaragua	4	8	8	5	4	11	2	2	11	1	9	3	4	10	1	4	8	1	5	3	1	6	12	3	14
Palestine	1	2	6	13	6	10	1	1	12	12	15	6	14	12	4	2	1	5	2	1	5	2	15	4	12
<b>Pakistan</b>	<b>10</b>	<b>14</b>	<b>15</b>	<b>14</b>	<b>5</b>	<b>13</b>	<b>11</b>	<b>14</b>	<b>14</b>	<b>4</b>	<b>7</b>	<b>11</b>	<b>1</b>	<b>9</b>	<b>3</b>	<b>12</b>	<b>9</b>	<b>14</b>	<b>7</b>	<b>5</b>	<b>14</b>	<b>15</b>	<b>11</b>	<b>13</b>	<b>8</b>
Yemen	15	15	3	12	11	15	8	5	7	8	14	15	13	13	9	8	2	7	1	2	11	3	14	10	3
Uzbekistan	12	4	14	3	15	3	5	4	1	11	11	10	7	8	10	5	11	9	8	12	8	11	10	12	6
Solomon Islands	7	9	5	4	8	1	13	11	9	14	1	4	9	15	5	13	10	12	12	7	2	4	7	8	13
Papua New Guinea	14	10	7	6	3	4	15	12	10	2	8	9	10	14	7	14	12	13	11	6	3	5	8	11	15
Djibouti	11	12	10	9	2	5	10	7	13	5	13	14	11	7	15	15	5	3	6	13	13	1	13	6	5
Laos	13	11	9	11	10	14	14	10	8	10	12	12	2	6	11	10	7	10	9	10	9	9	3	14	9
Kyrgyzstan	8	7	13	10	12	12	6	13	3	13	5	8	5	4	13	7	13	11	13	15	10	13	9	5	7
Ranking Legend	1 - 3			4 - 7			8 - 11			12 - 15															