آریا طب فیروز

گزارشات مطالعات بازار تجهیزات و خدمات دیالیز

کشور آفریقای جنوبی

جمع آوری و تنظیم

شرکت آریا طب فیروز

آذر ماه ۱۳۹۷

فهرست عناوین

شرکت دانش بنیان آریا طب فیروز
۱۳۹۷/۰۹/۱۷

[1] http://databank.worldbank.org/data/reports.aspx?source=2&country=IRN#
[2] https://www.who.int/gho/governance_aid_effectiveness/countries/zaf.pdf
[3] https://www.oecd.org/dac/financing-sustainable-development/development-finance-data/Africa-Development-Aid-at-a-Glance-2018.pdf
[4] https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases
[5] https://www.populationpyramid.net/world/2017/
[6] https://www.who.int/nmh/countries/zaf_en.pdf
[7] https://www.who.int/substance_abuse/publications/global_alcohol_report/profiles/zaf.pdf
[8] https://www.who.int/gho/countries/zaf.pdf
[9] https://www.cdc.gov/globalhealth/countries/southafrica/pdf/south_africa.pdf
[10] https://www.cdc.gov/globalhealth/countries/southafrica/pdf/south-africa.pdf
[11] https://www.cdc.gov/globalhealth/countries/southafrica/pdf/south-africa_factsheet.pdf
[12] https://www.who.int/bulletin/volumes/86/3/07-041715.pdf
[13] https://www.kidney.org/kidneydisease/global-facts-about-kidney-disease#_ENREF_3
[14] https://www.usrds.org/2017/view/Default.aspx
[15] http://sa-renalsociety.org/wp-content/uploads/2018/03/SA-RenalRegistry_2015.pdf
[16] http://www.journals.ac.za/index.php/ajn/article/viewFile/3298/1968

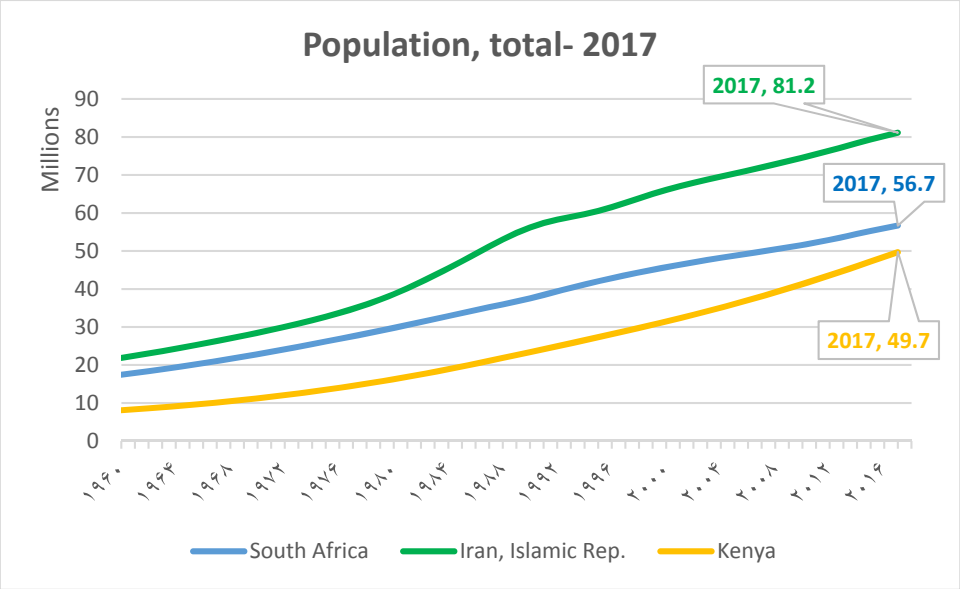
Iran vs. South Africa vs. Kenya

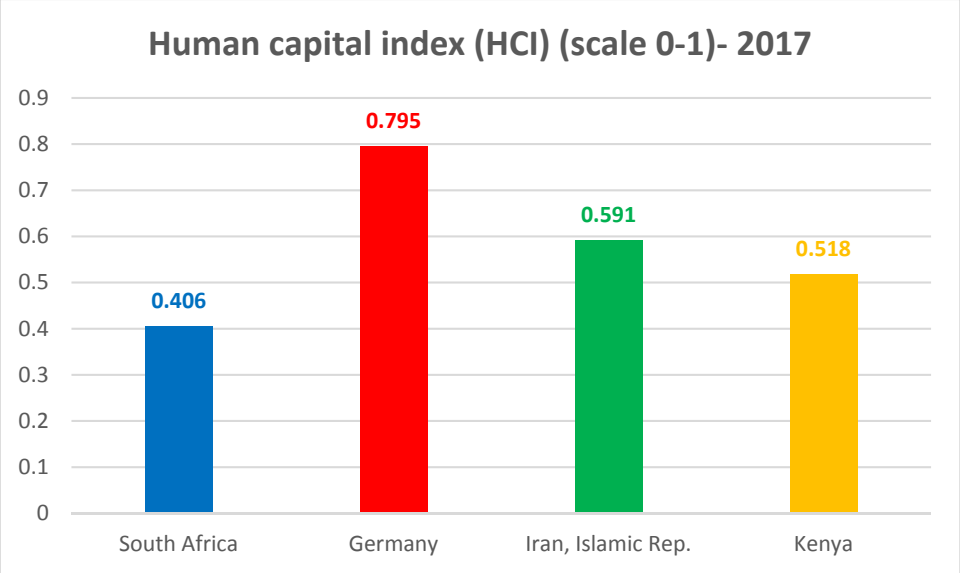
Economy & Health

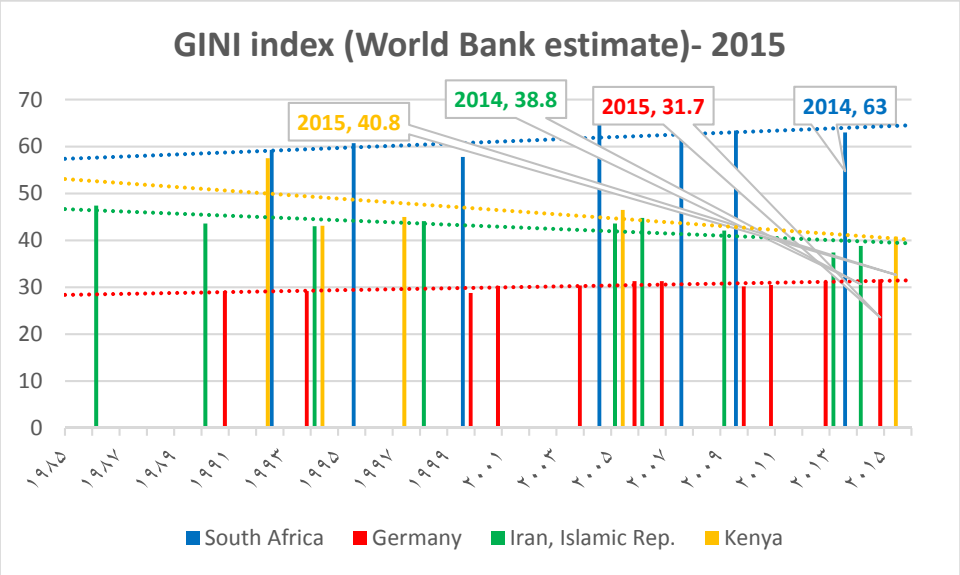
December 2018

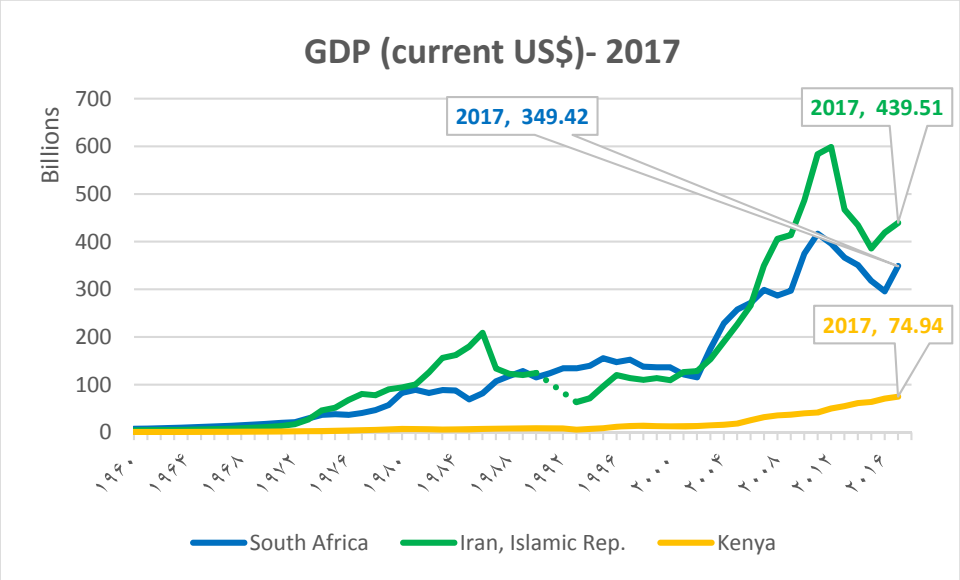
[1] http://arya-teb.com/

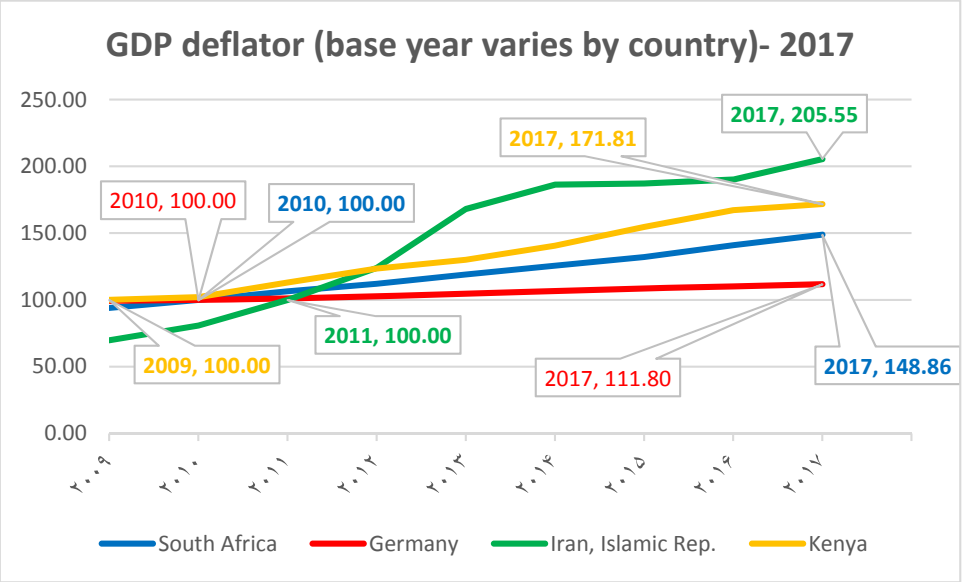
ECONOMY


Population, total- 2017
Millions
90
80
70
60
50
40
30
20
10
0
2017, 81.2
2017, 56.7
2017, 49.7
South Africa
Iran, Islamic Rep.
Kenya

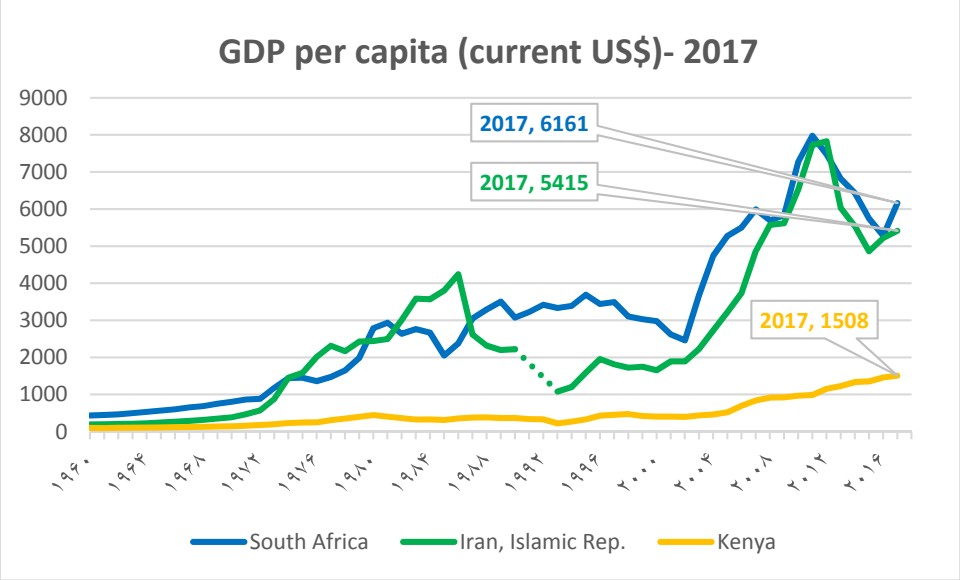

Human capital index (HCI) (scale 0-1)- 2017
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0.406
0.795
0.591
0.518
South Africa
Germany
Iran, Islamic Rep.
Kenya

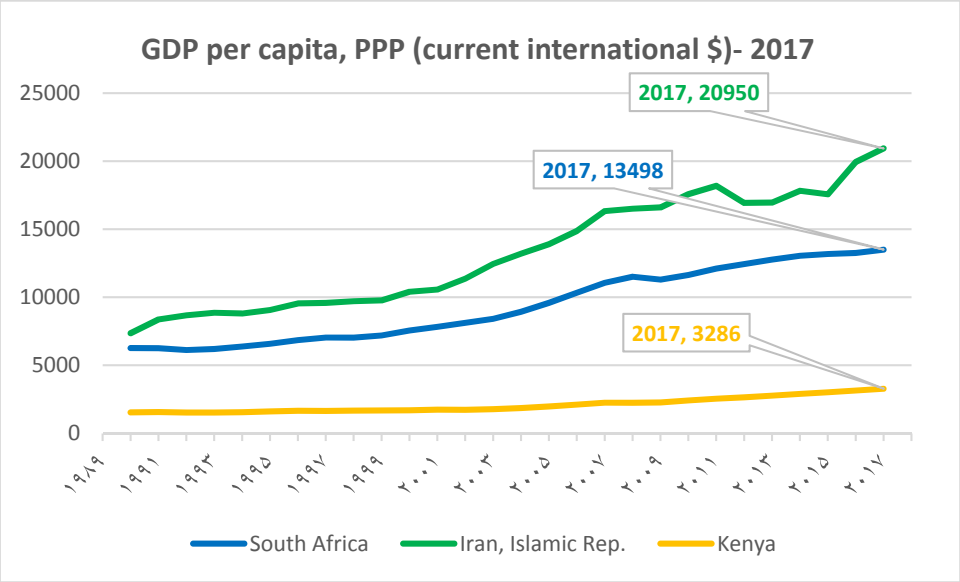

GINI index (World Bank estimate)- 2015
70
60
50
40
30
20
10
0
2015, 40.8
2014, 38.8
2015, 31.7
2014, 63
South Africa
Germany
Iran, Islamic Rep.
Kenya


GDP (current US$)- 2017
Billions
700
600
500
400
300
200
100
0
2017, 349.42
2017, 439.51
2017, 74.94
South Africa
Iran, Islamic Rep.
Kenya



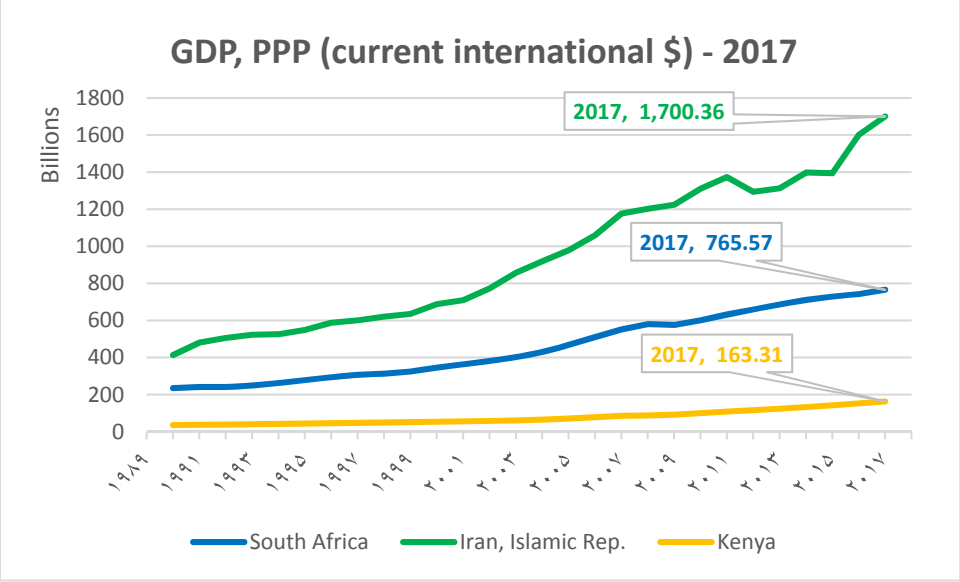
شاخص ضمنی تعدیل کننده تولید ناخالص داخلی (GDP deflator/ GDP implicit deflator)؛ عبارت است از **نسبت تولید ناخالص داخلی** بر حسب ارزش فعلی پول ملی هر کشور **به تولید ناخالص داخلی** بر حسب ارزش ثابت پول ملی همان کشور(سال مبنا در هر کشور متفاوت است).
شاخص ضمنی تعدیل کننده تولید ناخالص داخلی، یک شاخص اقتصادی است که اثر تورم در **تولید ناخالص داخلی** هر کشور در هر سال را با مقایسه با سال مبنا همان کشور مشخص می نماید.
این شاخص خاص نشان می دهد که چه میزان از تغییرات در **تولید ناخالص داخلی** بعد ازسال مبنا، در اثر تغییرات در سطح قیمت ها می باشد.





PPP/purchasing power parity conversion factor is the number of units of a country's currency required to buy the same amounts of goods and services in the domestic market as U.S. dollar would buy in the United States. This **conversion factor is** for GDP.

ضریب تبدیل قدرت برابری خرید (**PPP/purchasing power parity conversion factor**) عبارت است از؛ تعداد واحدهای پول یک کشورمورد نیازبرای خرید میزان مشخصی از کالا و خدمات در بازار داخلی همان کشور در مقایسه با تعداد دلار آمریکا مورد نیاز برای خرید میزان مشابه از کالا و خدمات در کشور آمریکا. از این ضریب تبدیل برای محاسبه "تولید ناخالص داخلی/GDP" هر کشور استفاده می گردد.



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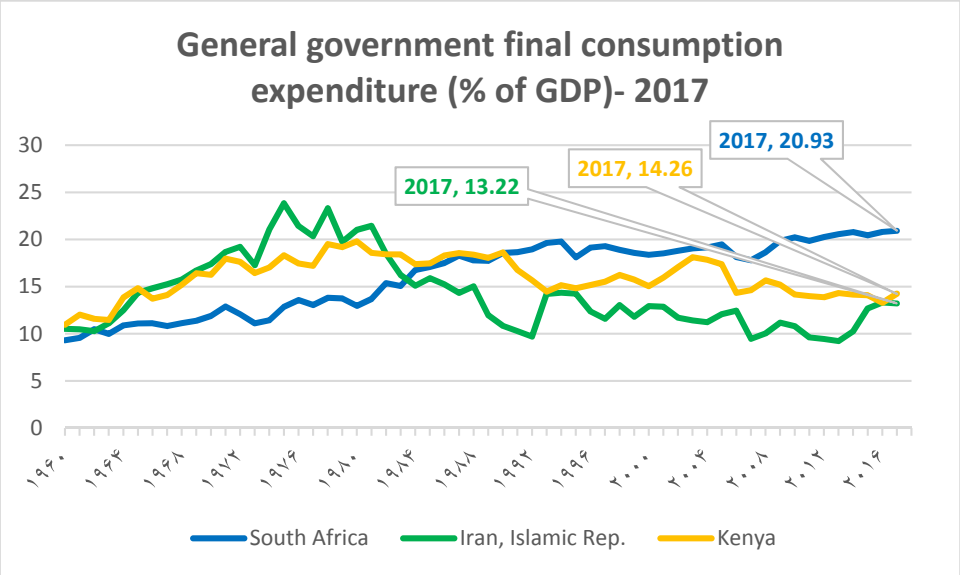
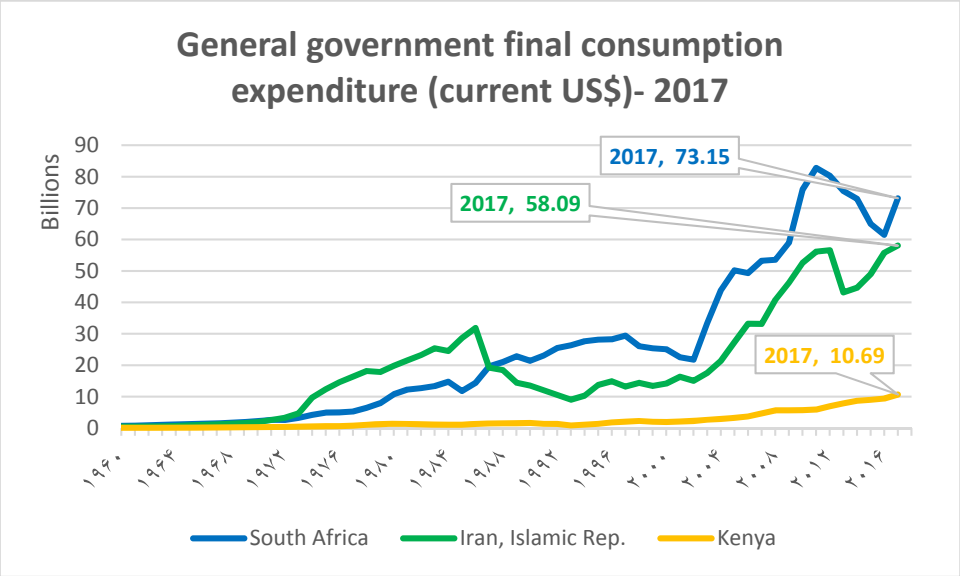
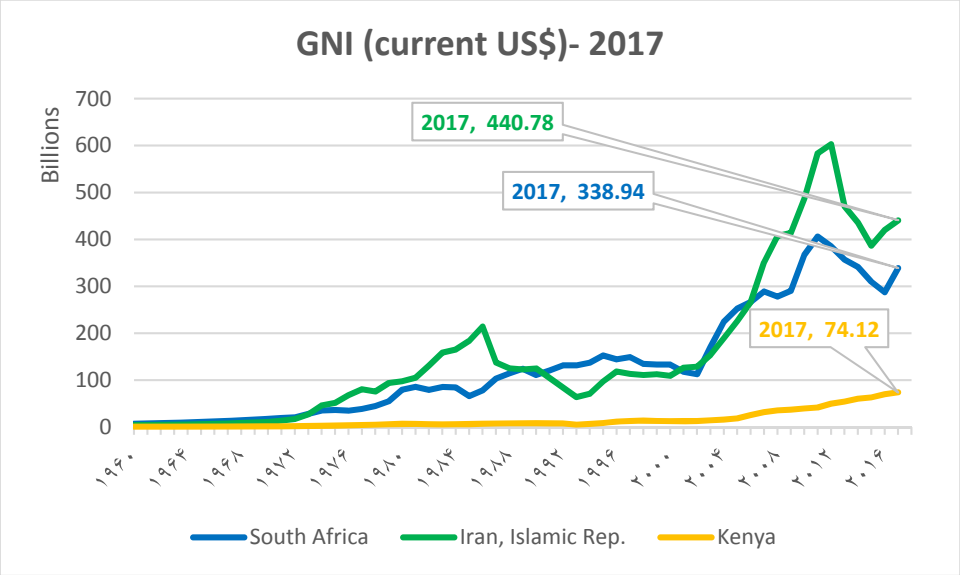
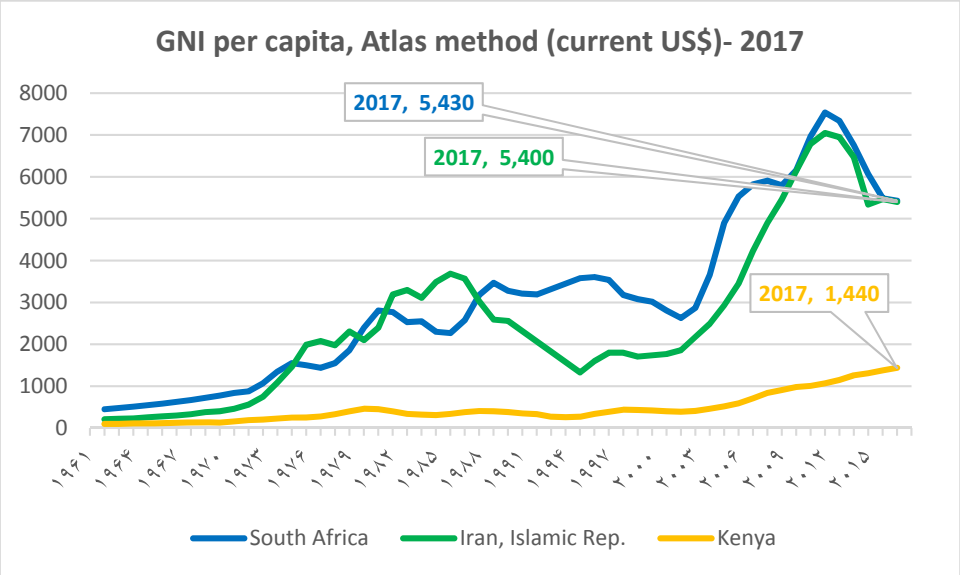
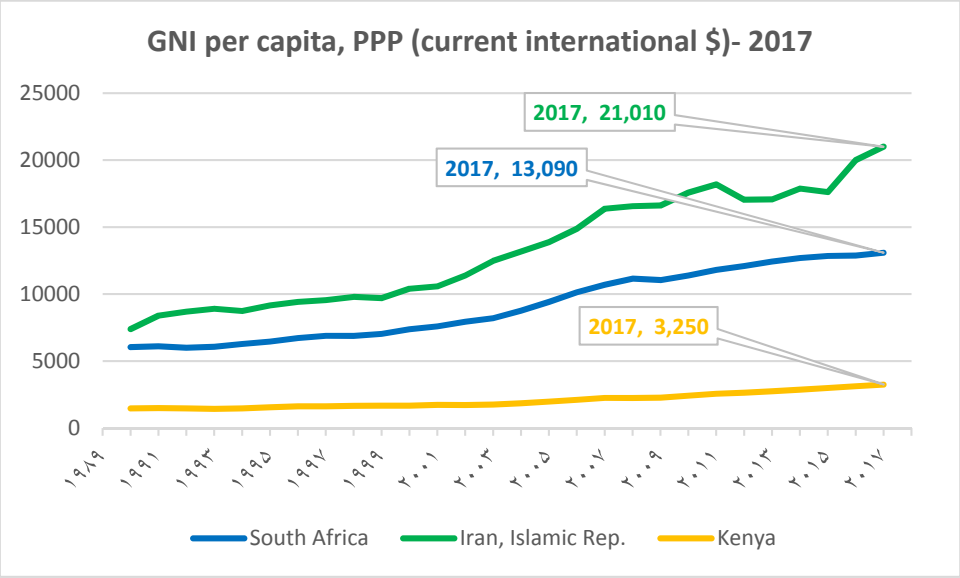

General government final consumption expenditure (% of GDP)- 2017
2017, 20.93
2017, 14.26
2017, 13.22
30
25
20
15
10
5
0
South Africa
Iran, Islamic Rep.
Kenya


General government final consumption expenditure (current US$)- 2017
Billions
2017, 73.15
2017, 58.09
2017, 10.69
90
80
70
60
50
40
30
20
10
0
South Africa
Iran, Islamic Rep.
Kenya

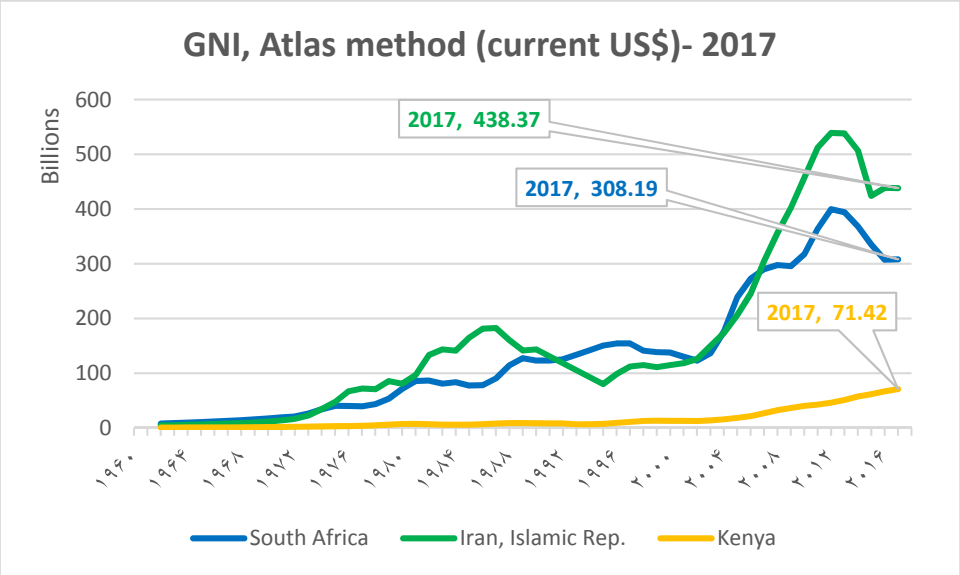

GNI (current US$)- 2017
Billions
2017, 440.78
2017, 338.94
2017, 74.12
700
600
500
400
300
200
100
0
South Africa
Iran, Islamic Rep.
Kenya

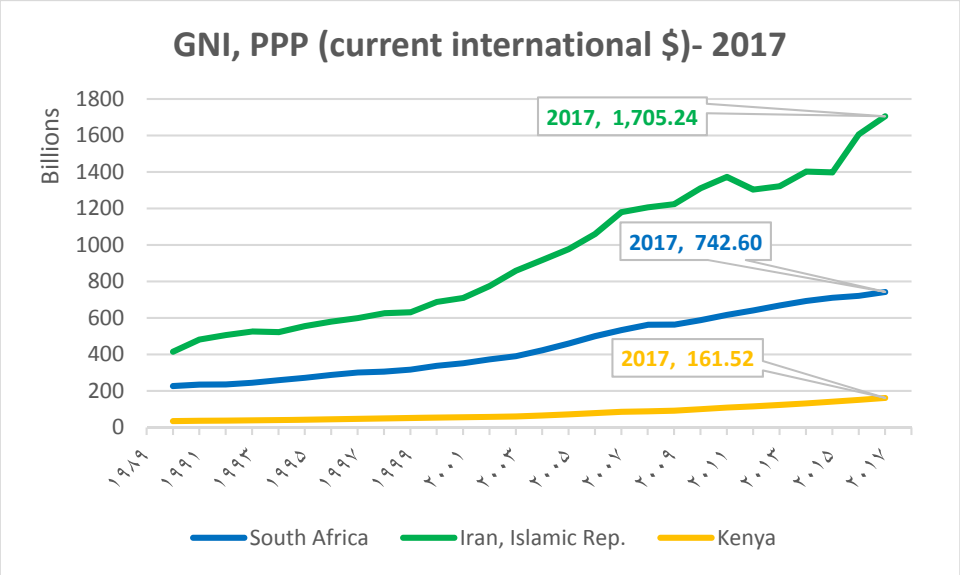




PPP/purchasing power parity conversion factor is the number of units of a country's currency required to buy the same amounts of goods and services in the domestic market as U.S. dollar would buy in the United States. This **conversion factor is** for GDP.

ضریب تبدیل قدرت برابری خرید (**PPP/purchasing power parity conversion factor**) عبارت است از؛ تعداد واحدهای پول یک کشورمورد نیازبرای خرید میزان مشخصی از کالا و خدمات در بازار داخلی همان کشور در مقایسه با تعداد دلار آمریکا مورد نیاز برای خرید میزان مشابه از کالا و خدمات در کشور آمریکا. از این ضریب تبدیل برای محاسبه "تولید ناخالص داخلی/GDP" هر کشور استفاده می گردد.





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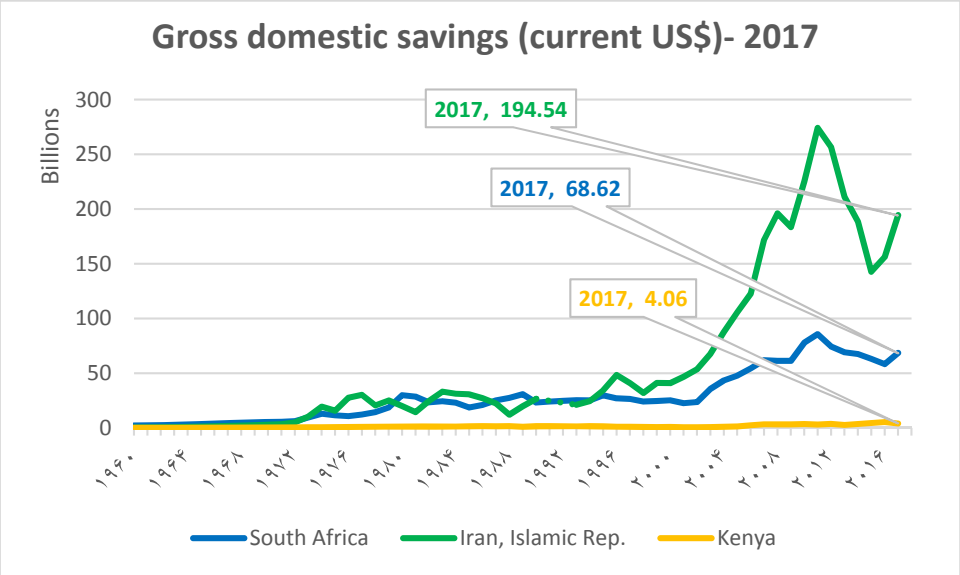
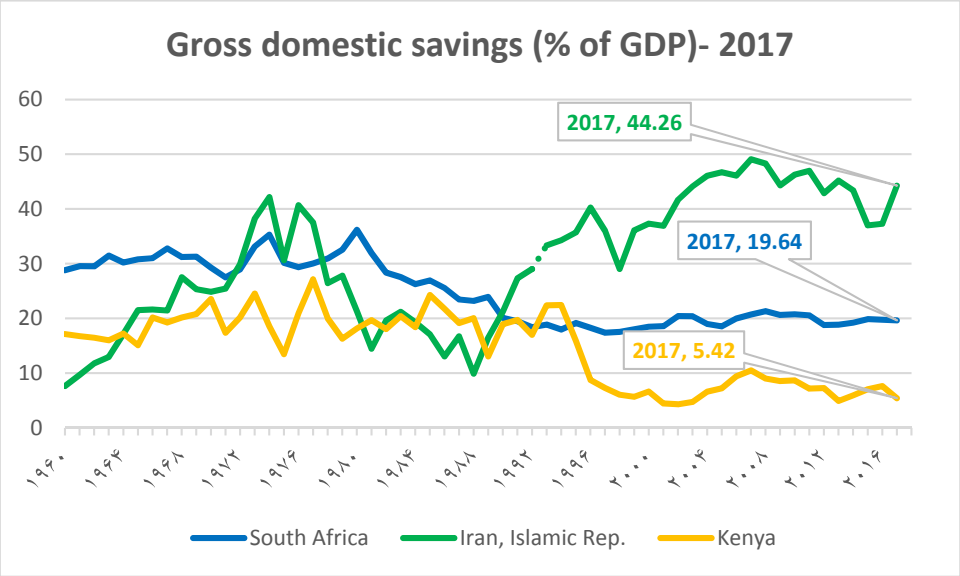
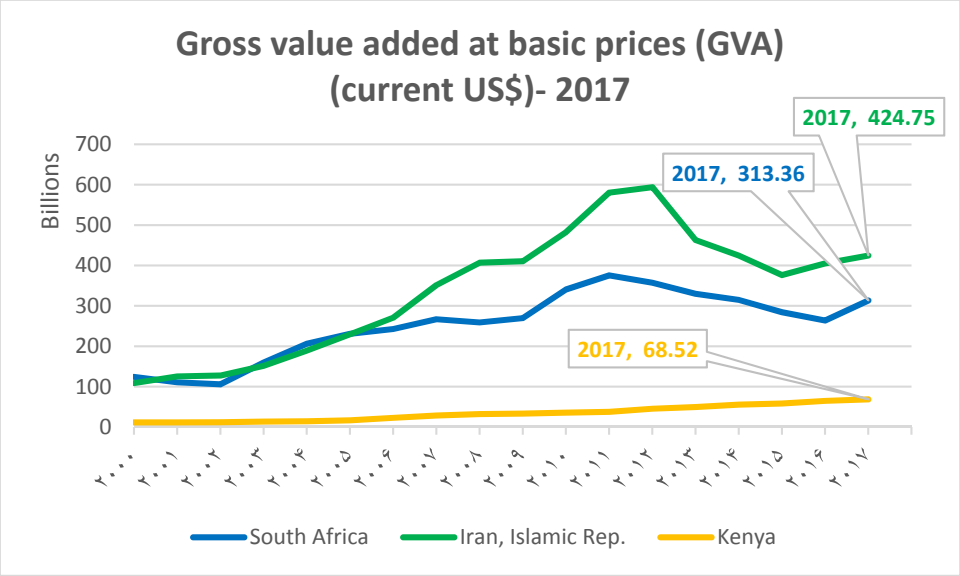
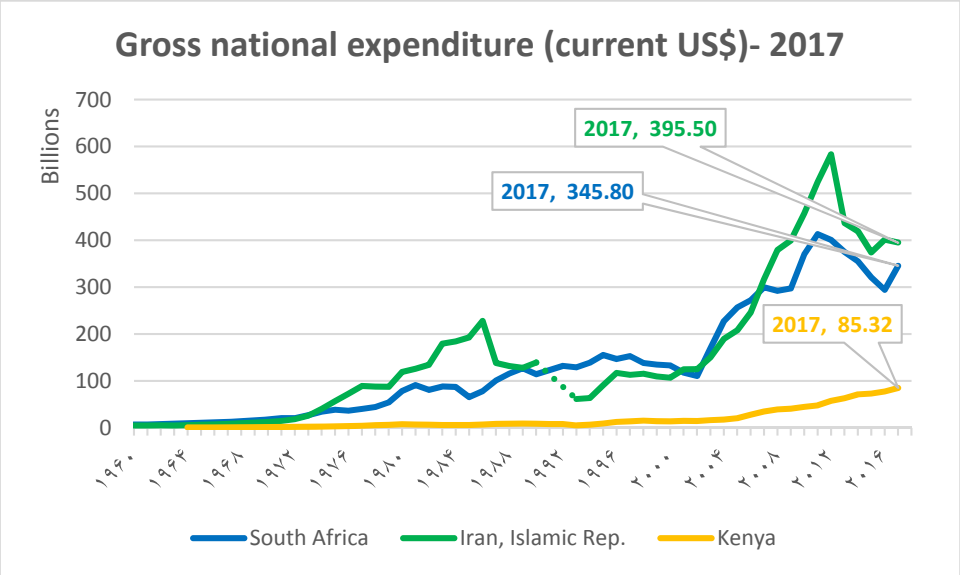
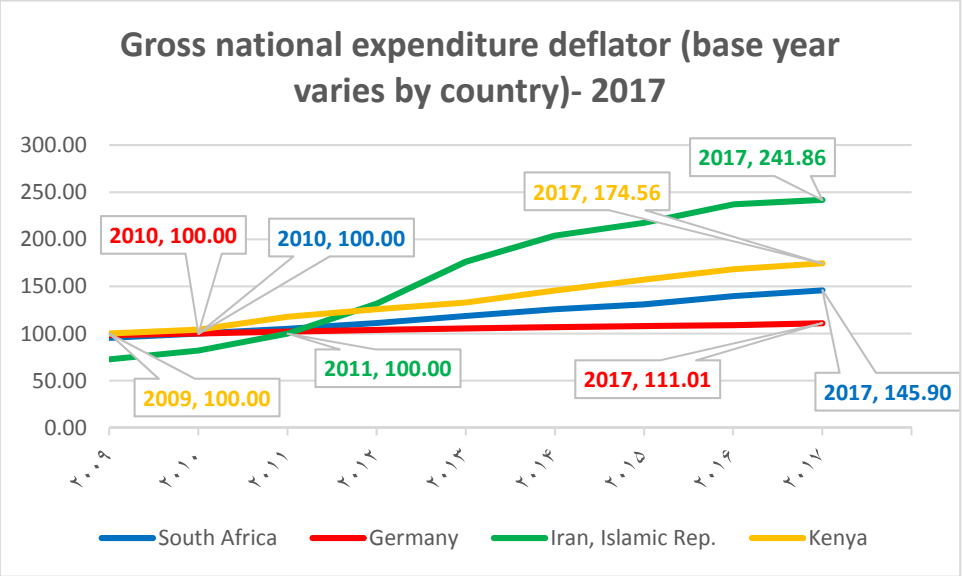

Gross domestic savings (current US$)- 2017
Billions
300
250
200
150
100
50
0
2017, 194.54
2017, 68.62
2017, 4.06
South Africa
Iran, Islamic Rep.
Kenya

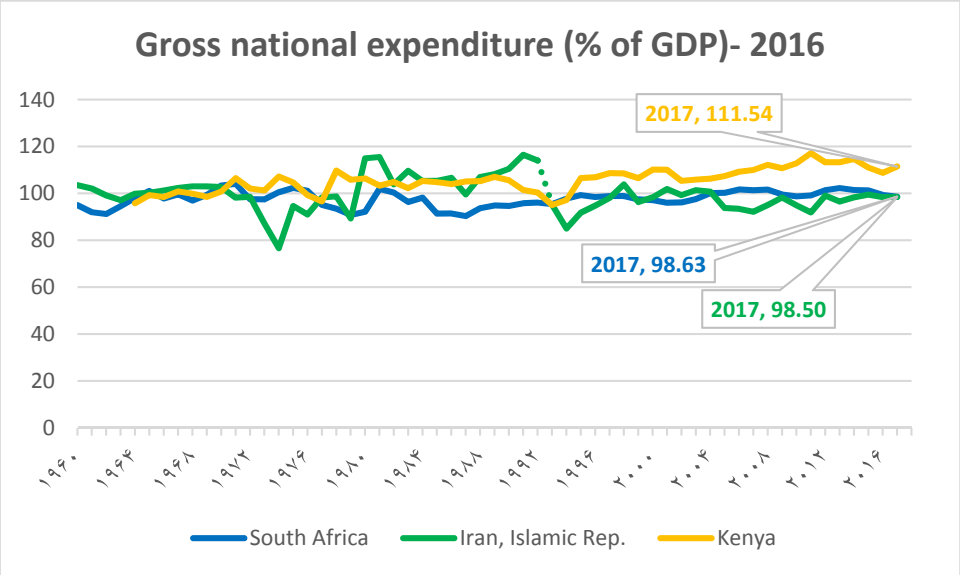

Gross domestic savings (% of GDP)- 2017
60
50
40
30
20
10
0
2017, 44.26
2017, 19.64
2017, 5.42
South Africa
Iran, Islamic Rep.
Kenya

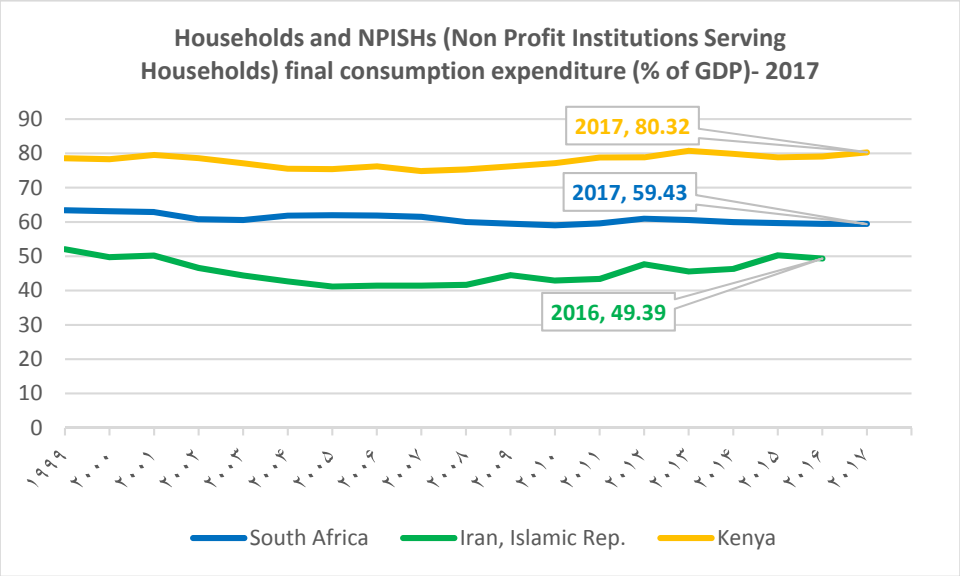

Gross value added at basic prices (GVA)
(current US$)- 2017
Billions
700
600
500
400
300
200
100
0
2017, 424.75
2017, 313.36
2017, 68.52
South Africa
Iran, Islamic Rep.
Kenya

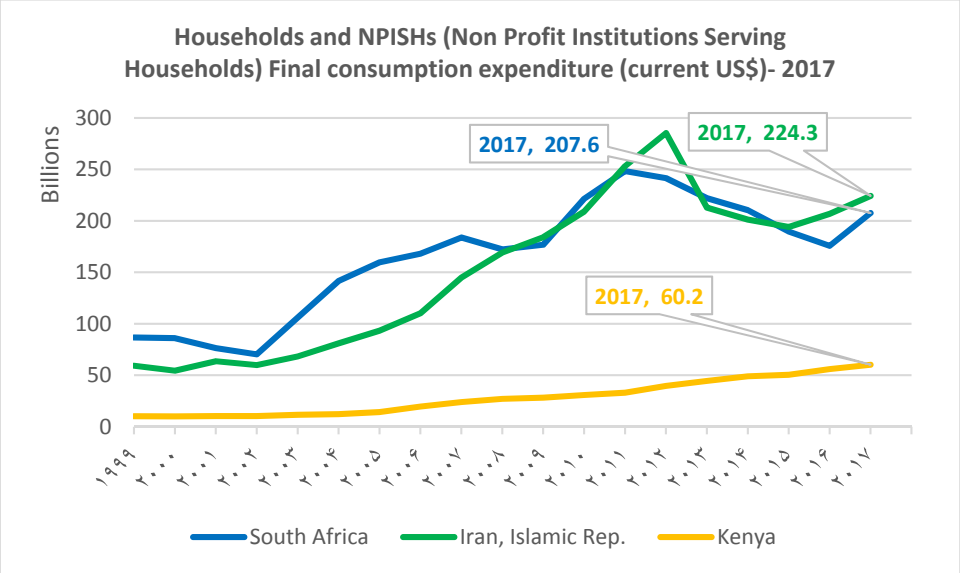


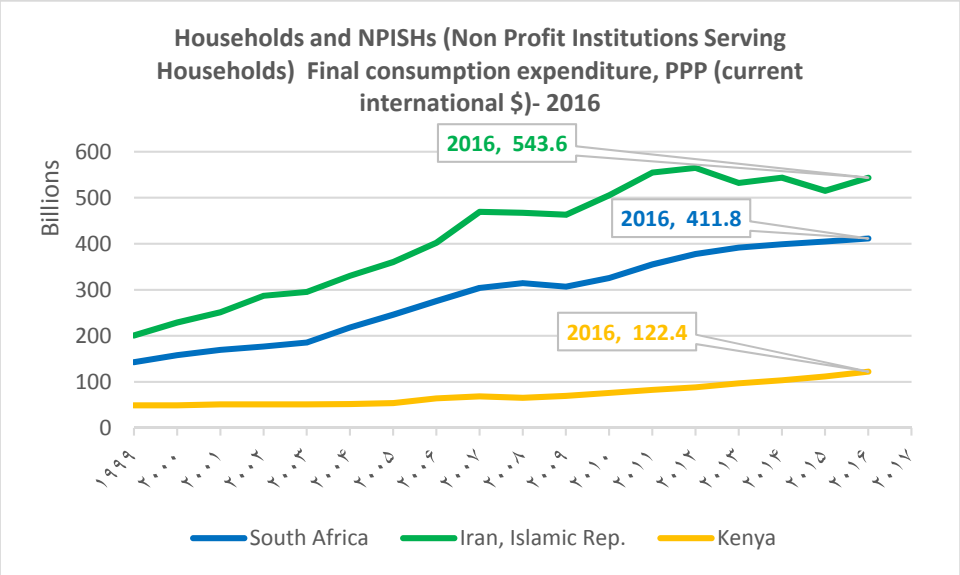


مخارج ناخالص ملی (Gross national expenditure)، عبارت است از مجموع مخارج مصرف نهایی خانوارها و بخش خصوصی داخلی و هزینه مصروف عمومی دولتی و سرمایه گذاری ناخالص داخلی.
شاخص ضمنی تعدیل کننده مخارج ناخالص ملی (Gross national expenditure deflator)؛ عبارت است از نسبت **مخارج ناخالص ملی** بر حسب ارزش فعلی پول ملی هر کشور به **مخارج ناخالص ملی** بر حسب ارزش ثابت پول ملی همان کشور(سال مبنا در هر کشور متفاوت است).


Gross national expenditure (% of GDP)- 2016
140
120
100
80
60
40
20
0
2017, 111.54
2017, 98.63
2017, 98.50
South Africa
Iran, Islamic Rep.
Kenya


Households and NPISHs (Non Profit Institutions Serving Households) final consumption expenditure (% of GDP)- 2017
90
80
70
60
50
40
30
20
10
0
2017, 80.32
2017, 59.43
2016, 49.39
South Africa
Iran, Islamic Rep.
Kenya


Households and NPISHs (Non Profit Institutions Serving Households) Final consumption expenditure (current US$)- 2017
Billions
300
250
200
150
100
50
0
2017, 207.6
2017, 224.3
2017, 60.2
South Africa
Iran, Islamic Rep.
Kenya



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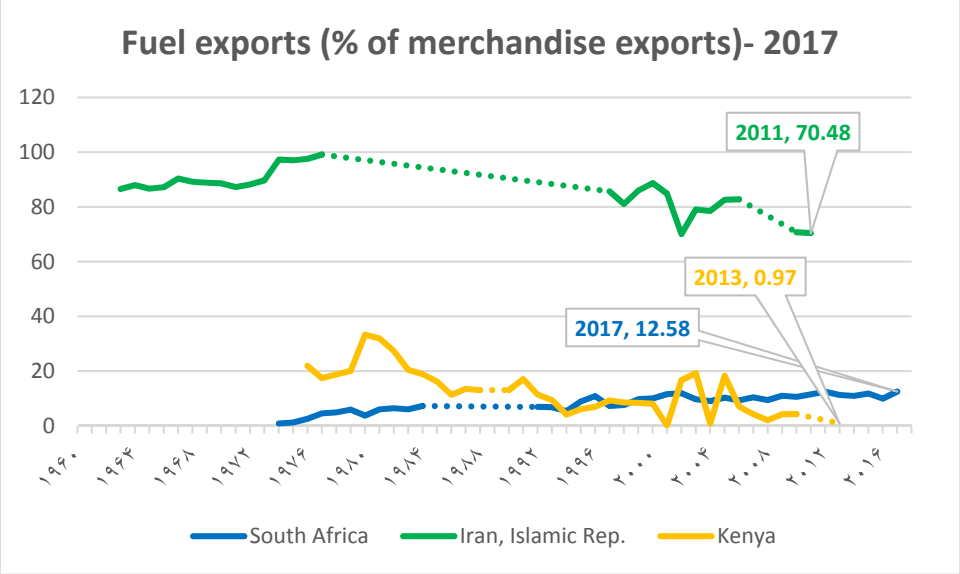
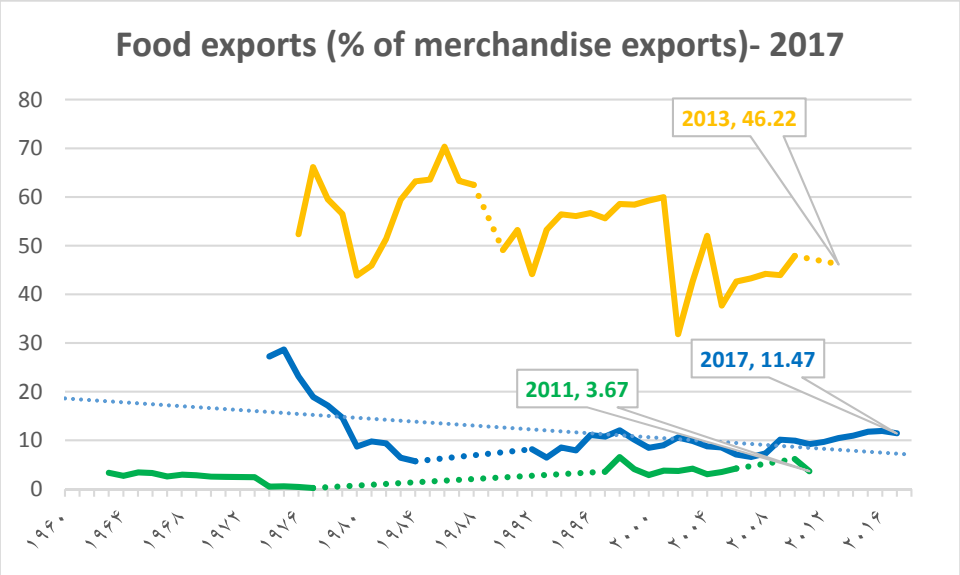
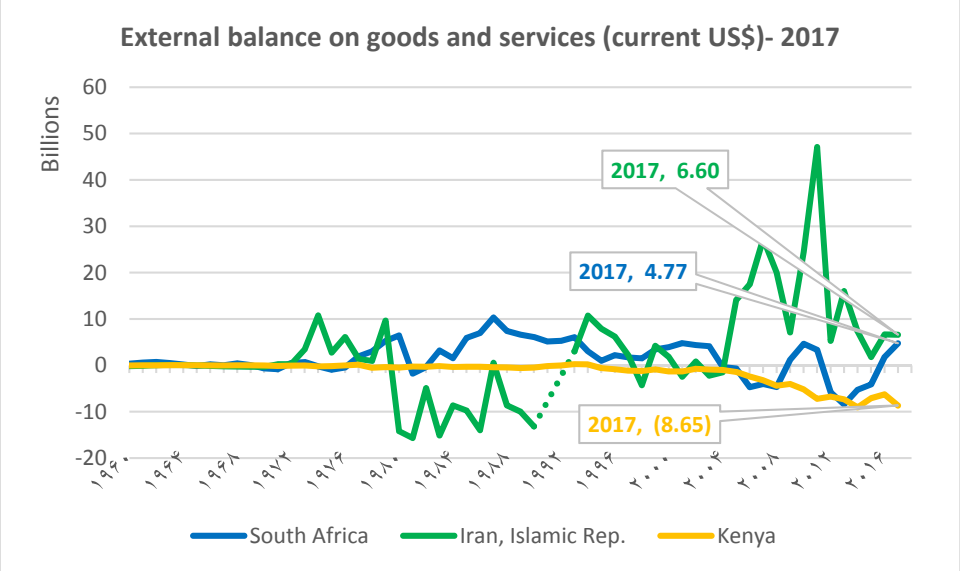
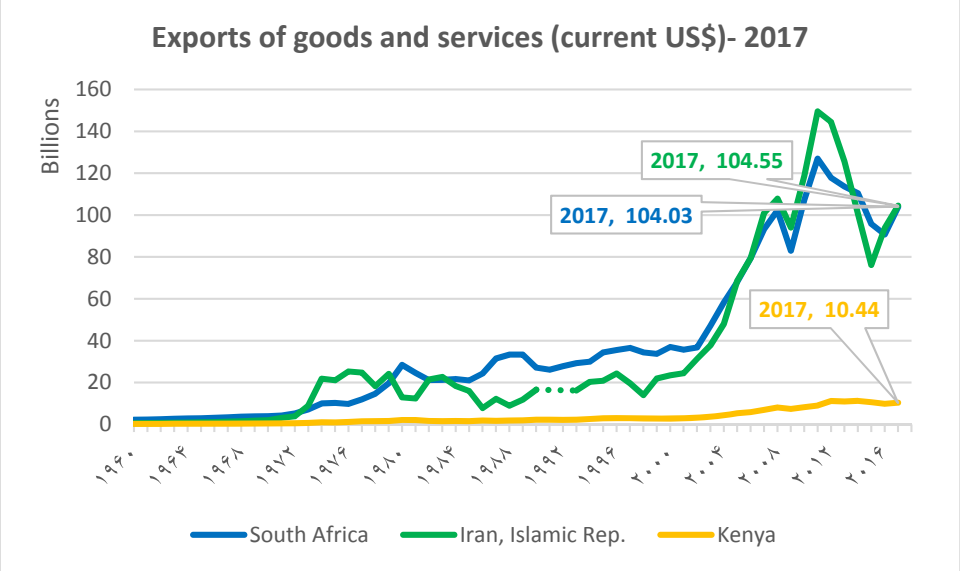
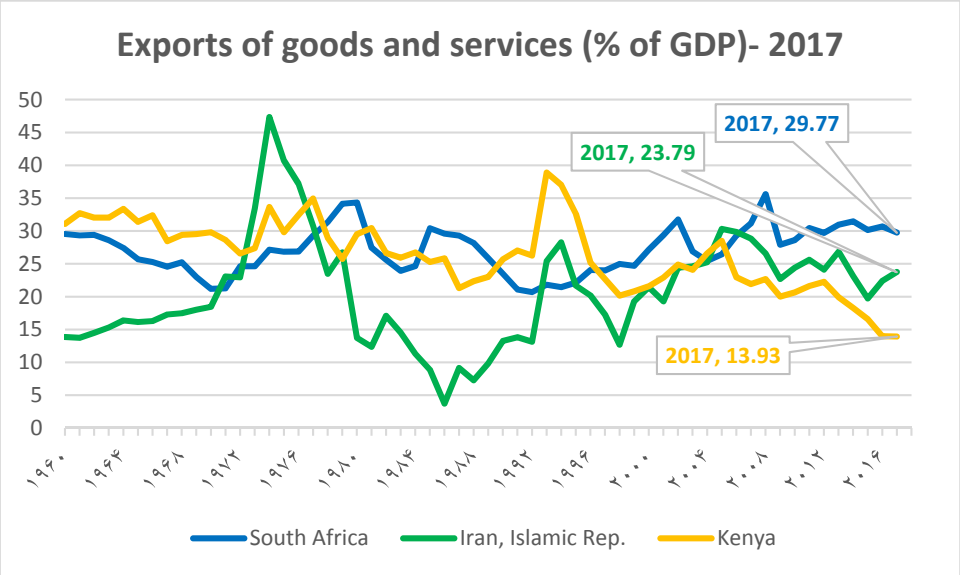
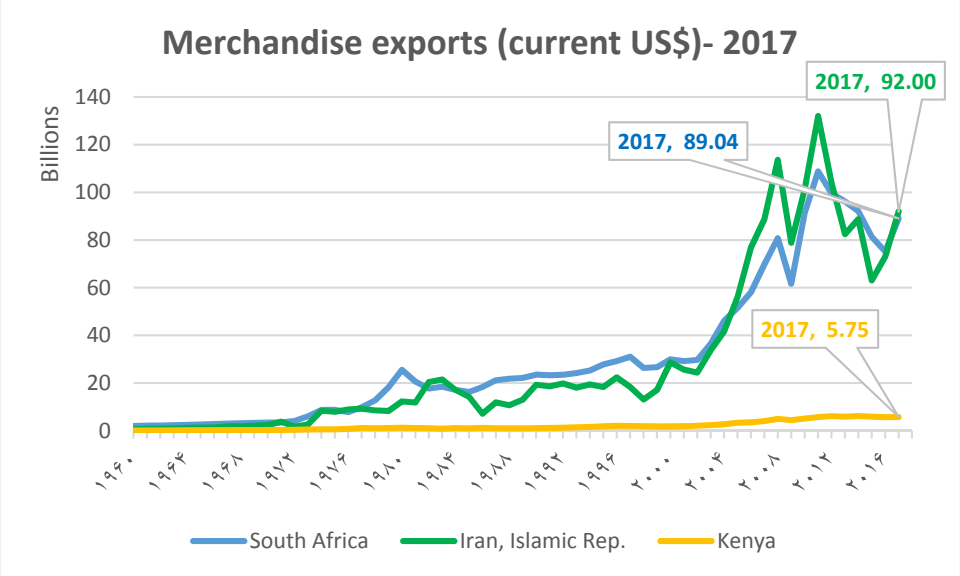


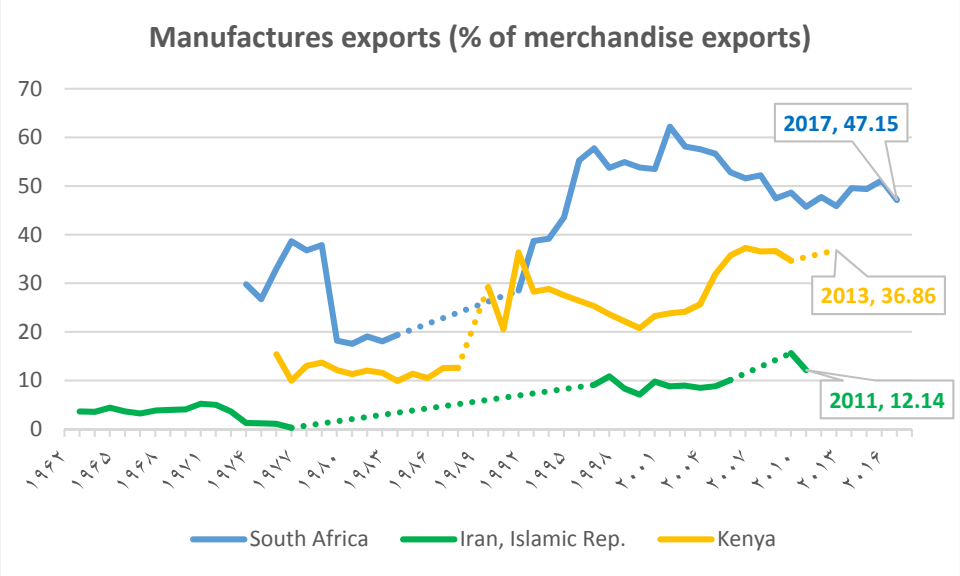

Food exports (% of merchandise exports)- 2017
80
70
60
50
40
30
20
10
0
2013, 46.22
2017, 11.47
2011, 3.67

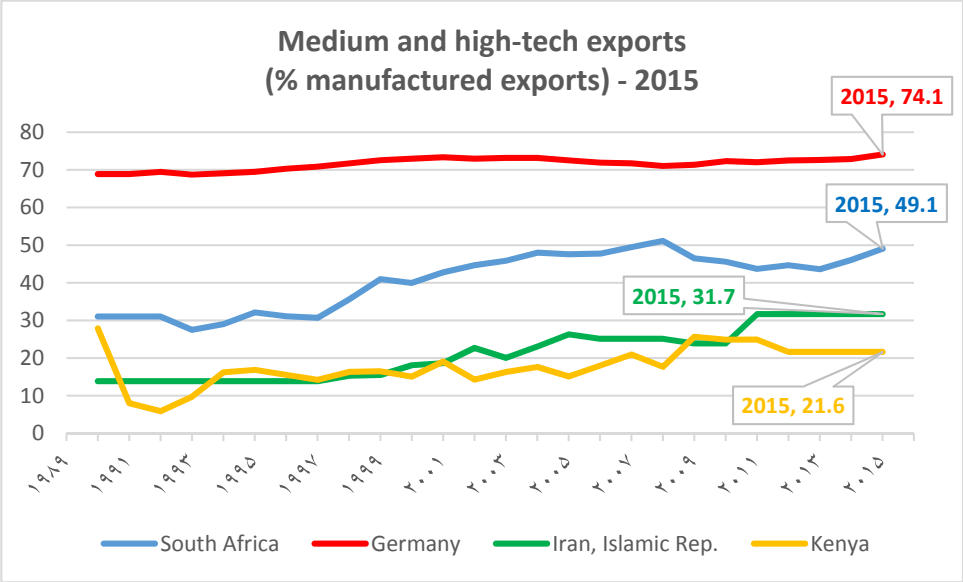

External balance on goods and services (current US$)- 2017
Billions
60
50
40
30
20
10
0
-10
-20
2017, 6.60
2017, 4.77
2017, (8.65)
South Africa
Iran, Islamic Rep.
Kenya

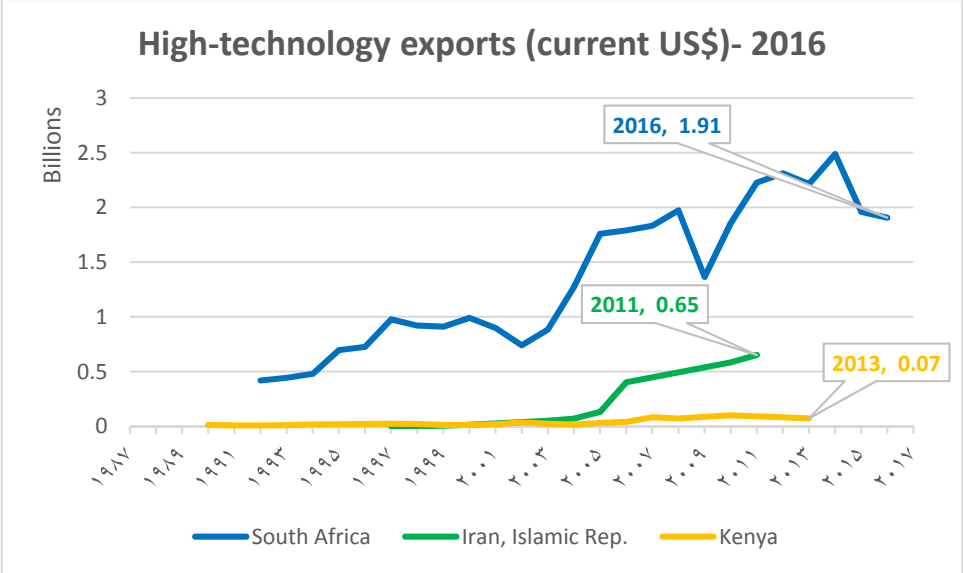

Exports of goods and services (current US$)- 2017
Billions
160
140
120
100
80
60
40
20
0
2017, 104.55
2017, 104.03
2017, 10.44
South Africa
Iran, Islamic Rep.
Kenya

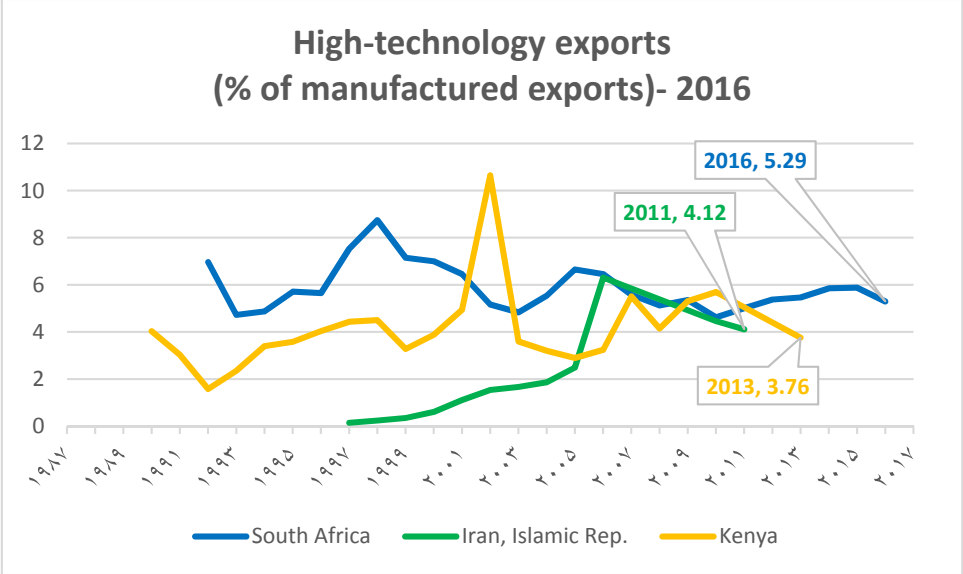

Exports of goods and services (% of GDP)- 2017
50
45
40
35
30
25
20
15
10
5
0
2017, 29.77
2017, 23.79
2017, 13.93
South Africa
Iran, Islamic Rep.
Kenya

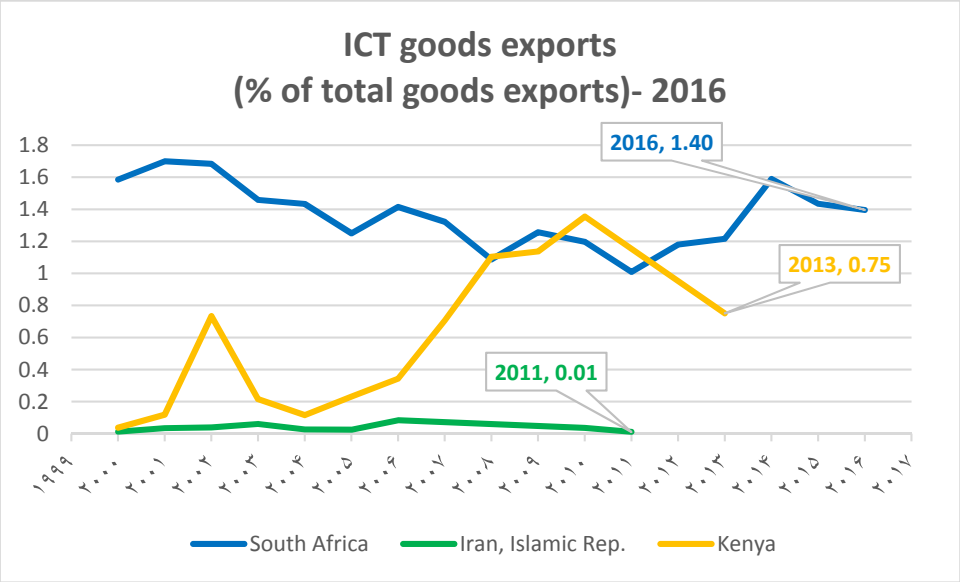

Merchandise exports (current US$)- 2017
Billions
140
120
100
80
60
40
20
0
2017, 92.00
2017, 89.04
2017, 5.75
South Africa
Iran, Islamic Rep.
Kenya

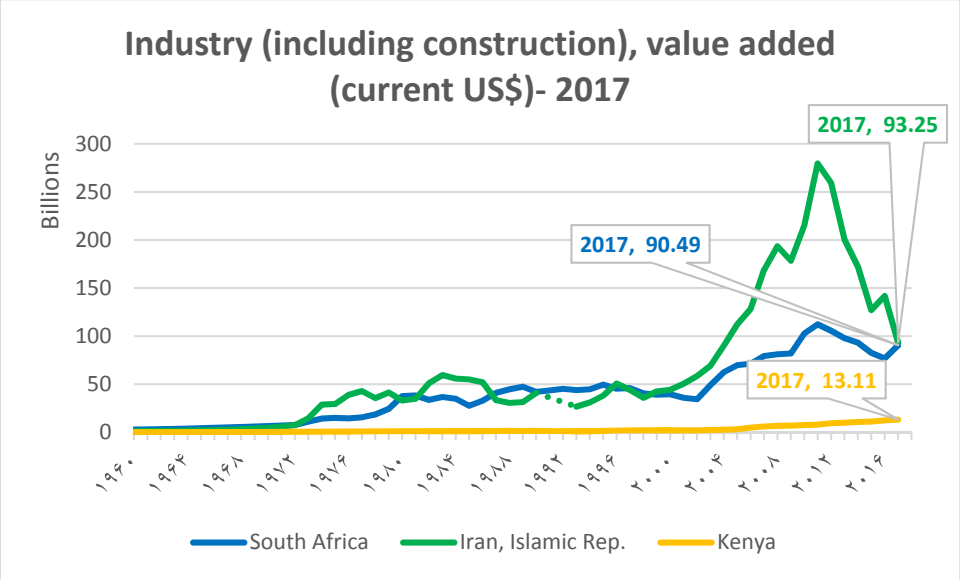

Manufactures exports (% of merchandise exports)
70
60
50
40
30
20
10
0
2017, 47.15
2013, 36.86
2011, 12.14
South Africa
Iran, Islamic Rep.
Kenya

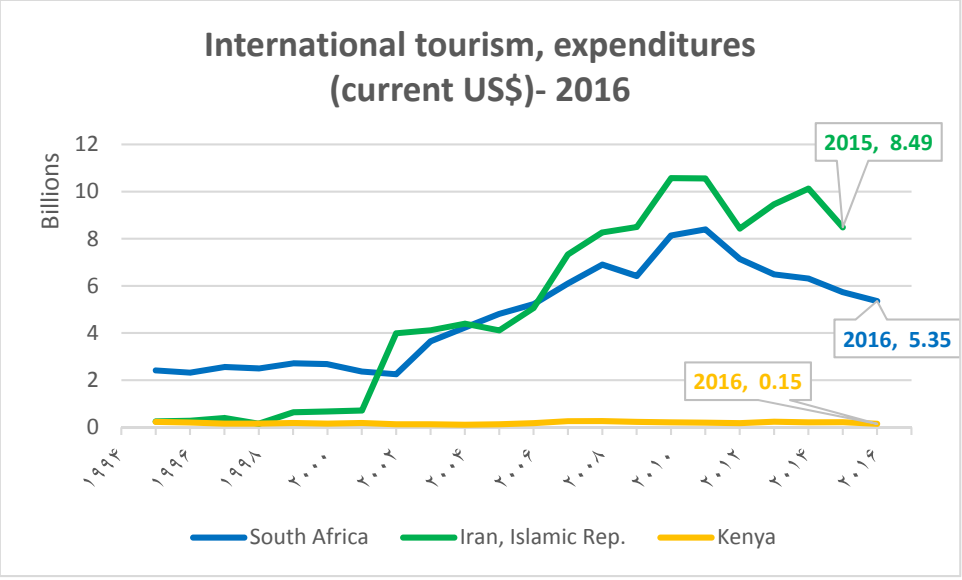

Medium and high-tech exports
(% manufactured exports) - 2015
2015, 74.1
2015, 49.1
2015, 31.7
2015, 21.6
South Africa
Germany
Iran, Islamic Rep.
Kenya

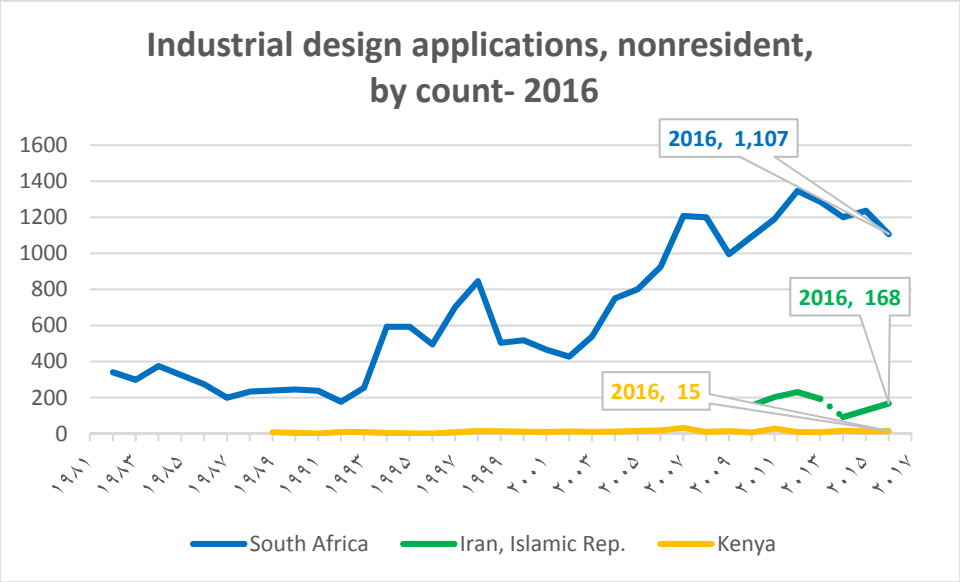

High-technology exports (current US$)- 2016
Billions
2016, 1.91
2011, 0.65
2013, 0.07
South Africa
Iran, Islamic Rep.
Kenya

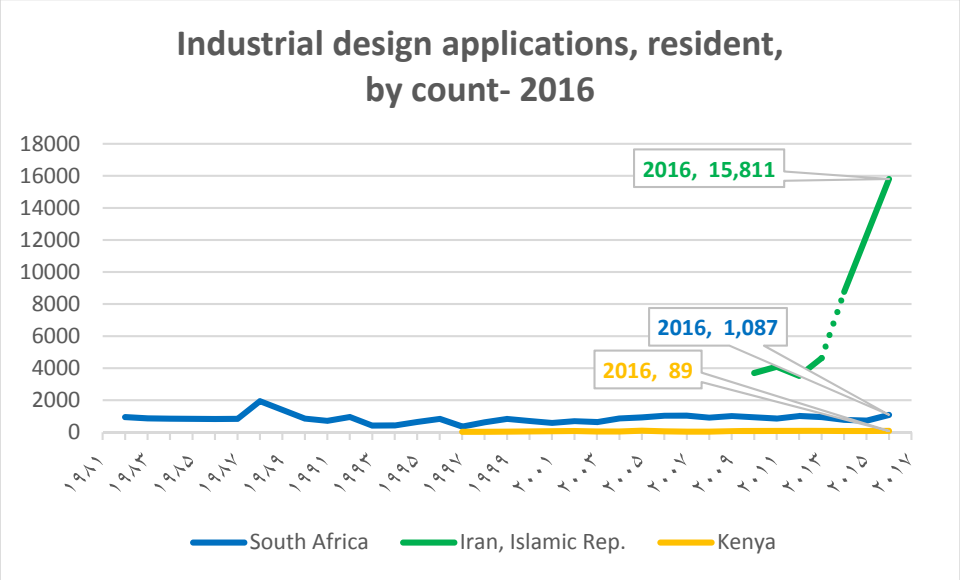

High-technology exports
(% of manufactured exports)- 2016
2016, 5.29
2011, 4.12
2013, 3.76
South Africa
Iran, Islamic Rep.
Kenya

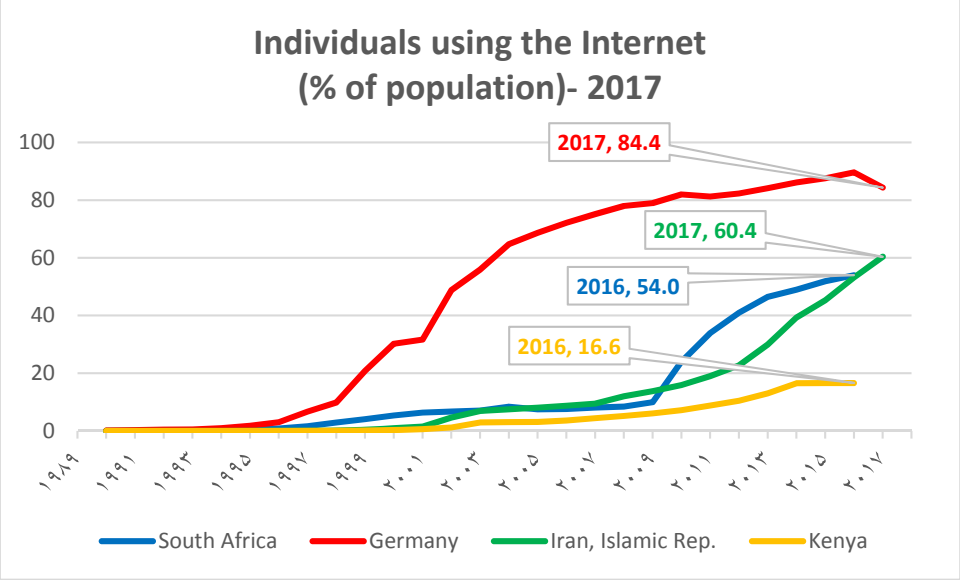

ICT goods exports
(% of total goods exports)- 2016
2016, 1.40
2013, 0.75
2011, 0.01
South Africa
Iran, Islamic Rep.
Kenya

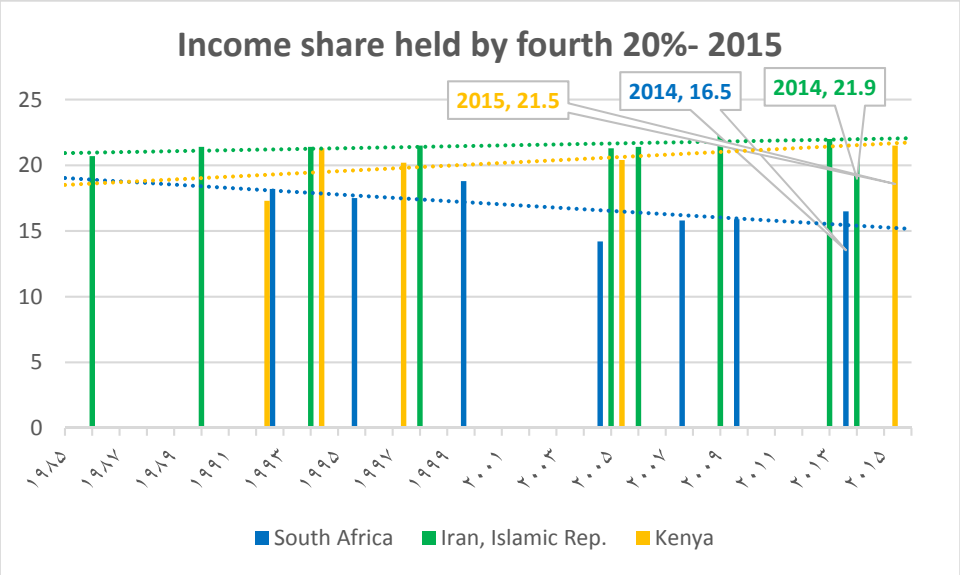

Industry (including construction), value added
(current US$)- 2017
Billions
2017, 93.25
2017, 90.49
2017, 13.11
South Africa
Iran, Islamic Rep.
Kenya

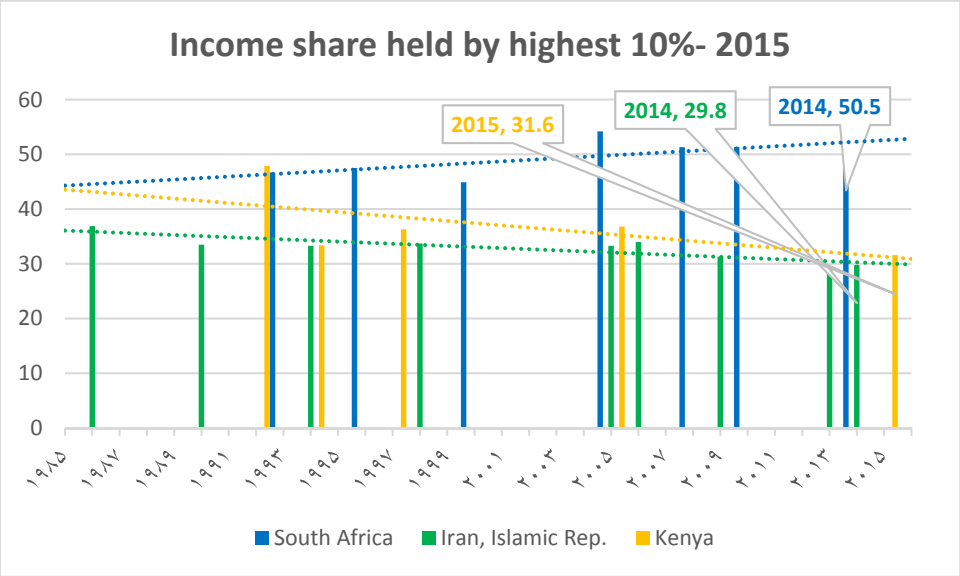

International tourism, expenditures
(current US$)- 2016
Billions
2015, 8.49
2016, 5.35
2016, 0.15
South Africa
Iran, Islamic Rep.
Kenya

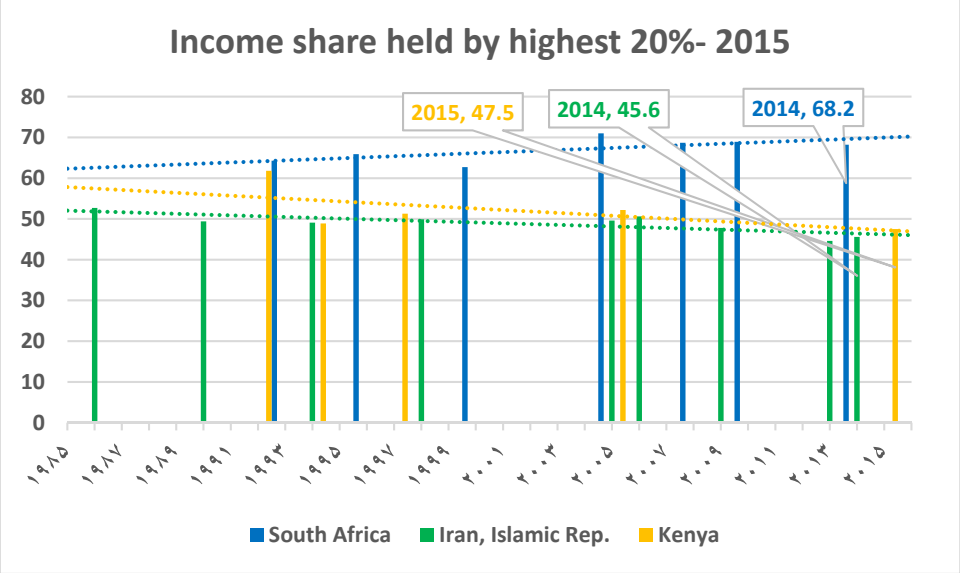

Industrial design applications, nonresident, by count- 2016
2016, 1,107
2016, 168
2016, 15
South Africa
Iran, Islamic Rep.
Kenya

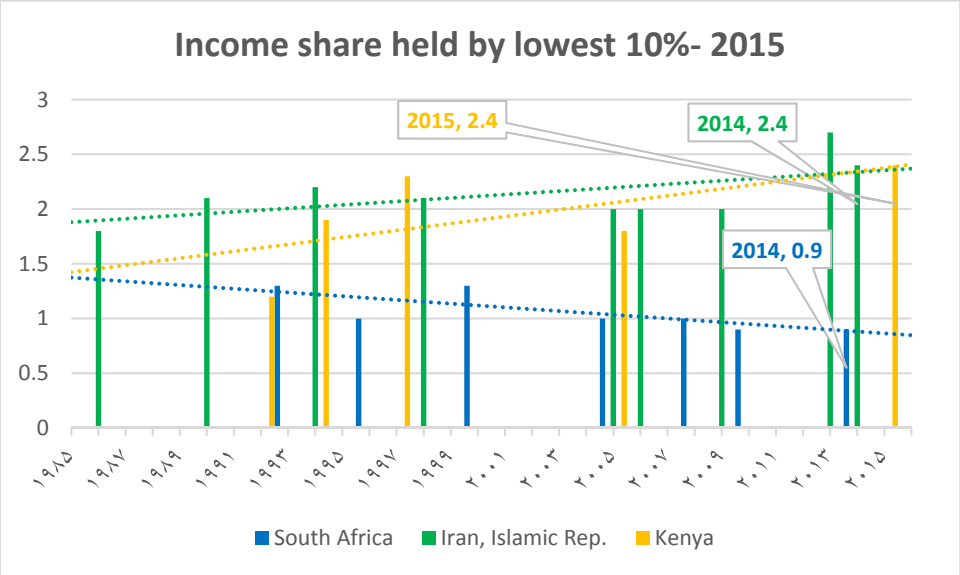

Industrial design applications, resident, by count- 2016
2016, 15,811
2016, 1,087
2016, 89
South Africa
Iran, Islamic Rep.
Kenya

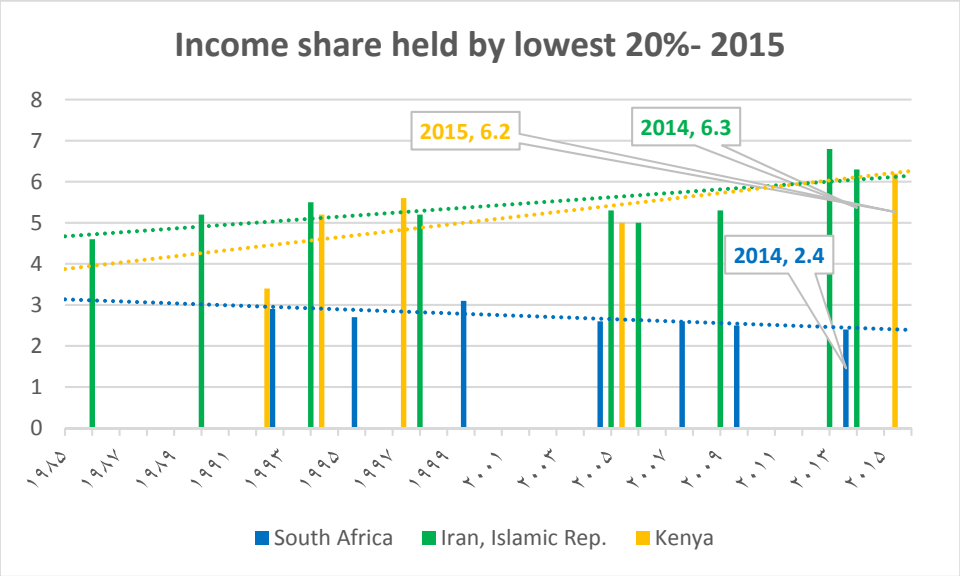

Individuals using the Internet (% of population)- 2017
2017, 84.4
2017, 60.4
2016, 54.0
2016, 16.6
South Africa
Germany
Iran, Islamic Rep.
Kenya

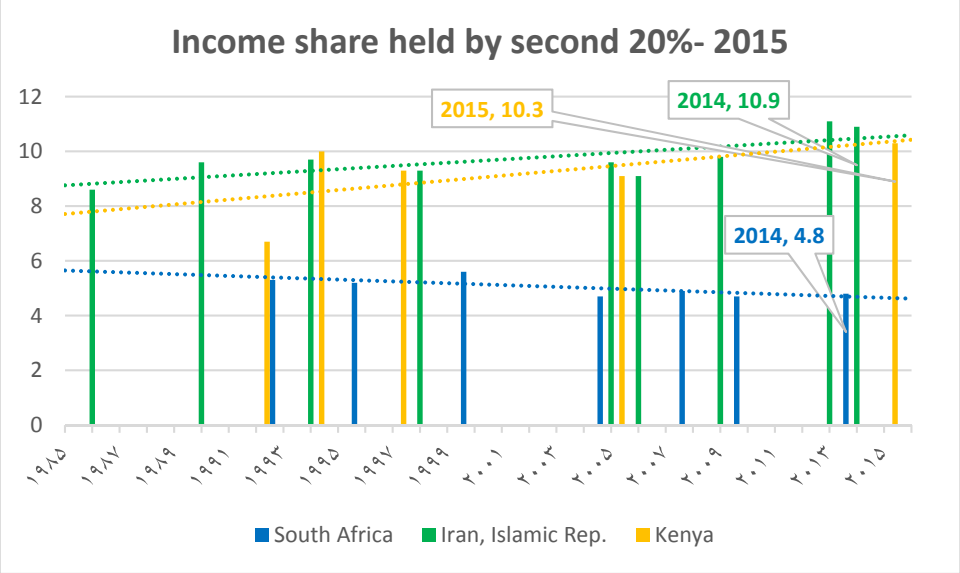

Income share held by fourth 20%- 2015
2015, 21.5
2014, 16.5
2014, 21.9
25
20
15
10
5
0
South Africa
Iran, Islamic Rep.
Kenya

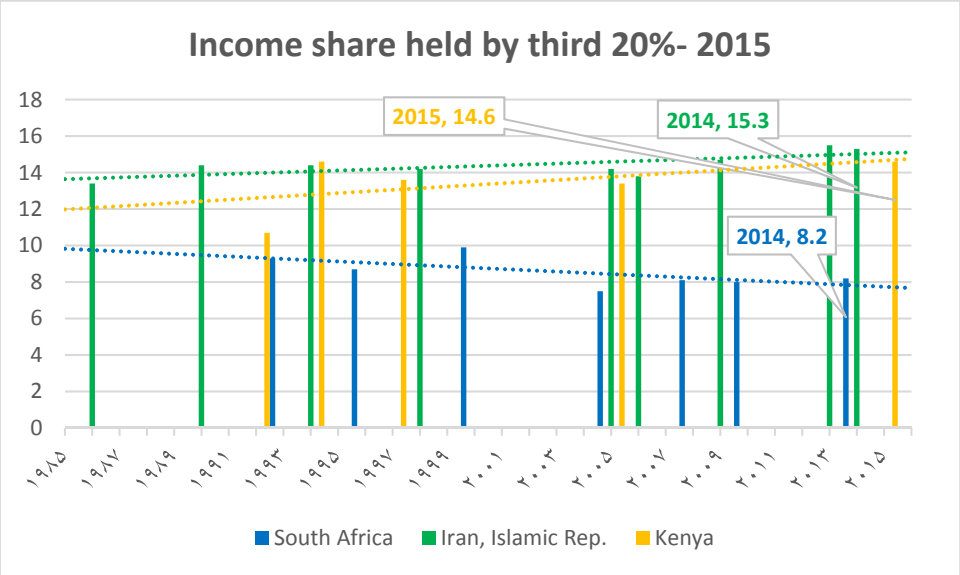

Income share held by highest 10%- 2015
2015, 31.6
2014, 29.8
2014, 50.5
60
50
40
30
20
10
0
South Africa
Iran, Islamic Rep.
Kenya

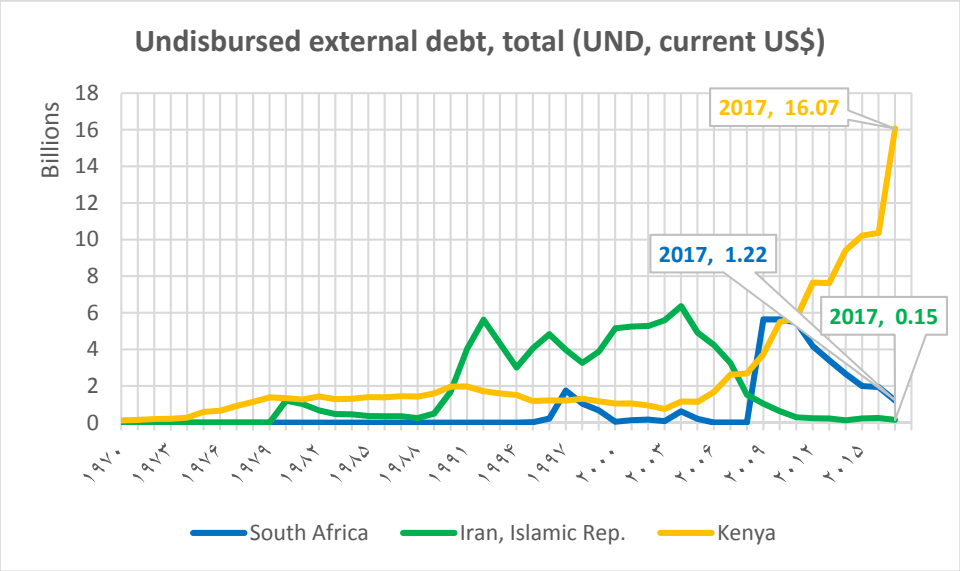

Income share held by highest 20%- 2015
2015, 47.5
2014, 45.6
2014, 68.2
80
70
60
50
40
30
20
10
0
South Africa
Iran, Islamic Rep.
Kenya

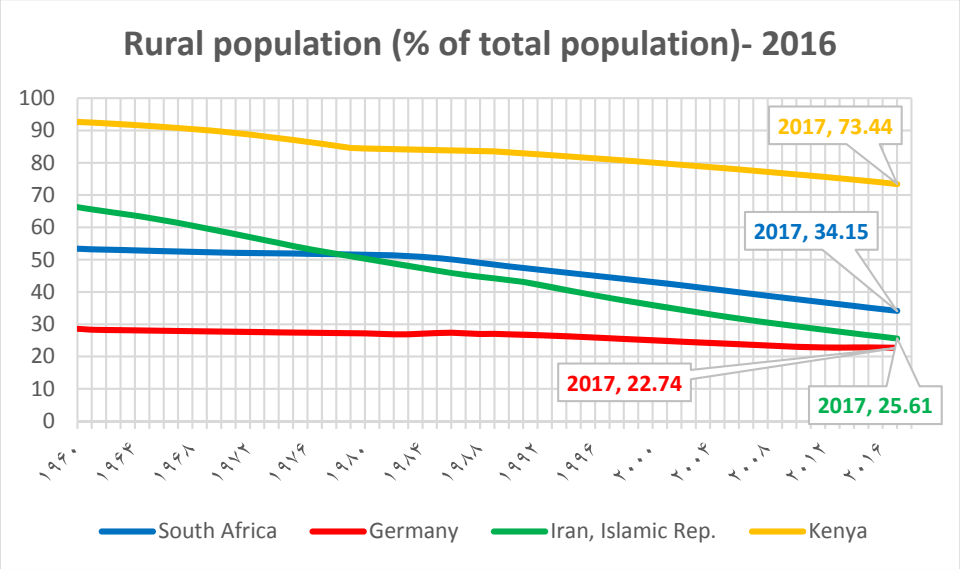

Income share held by lowest 10%- 2015
2015, 2.4
2014, 2.4
2014, 0.9
South Africa
Iran, Islamic Rep.
Kenya

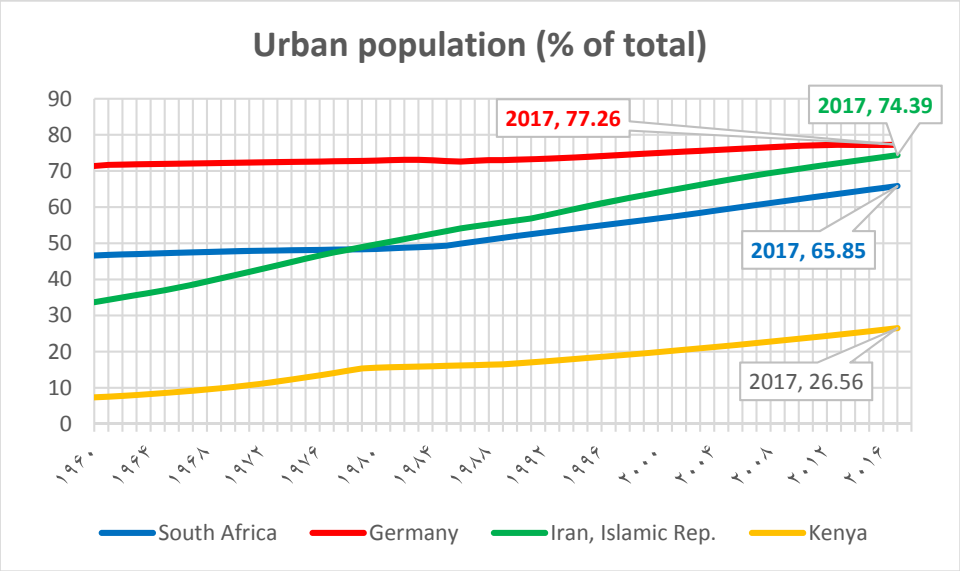

Income share held by lowest 20%- 2015
2015, 6.2
2014, 6.3
2014, 2.4
South Africa
Iran, Islamic Rep.
Kenya

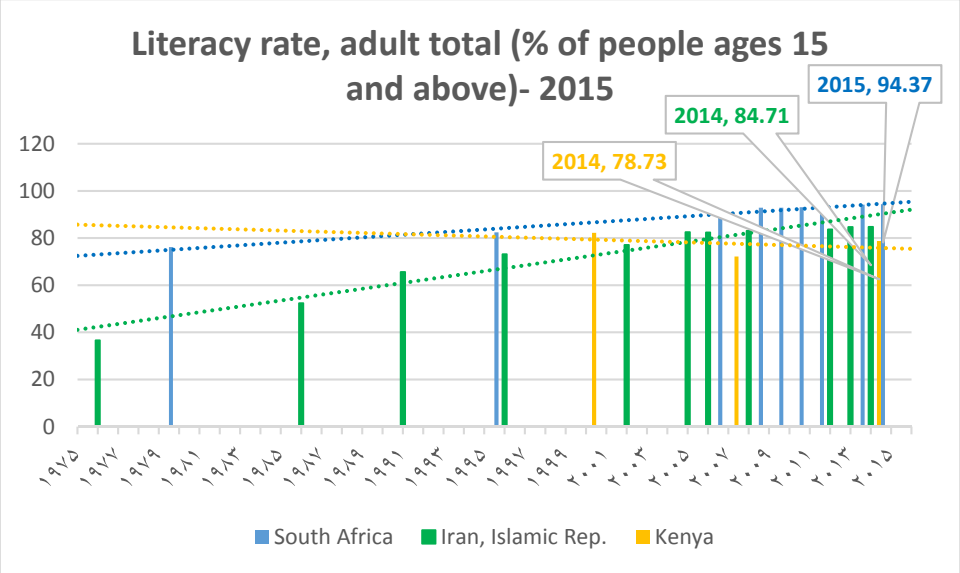

Income share held by second 20%- 2015
2015, 10.3
2014, 10.9
2014, 4.8
South Africa
Iran, Islamic Rep.
Kenya

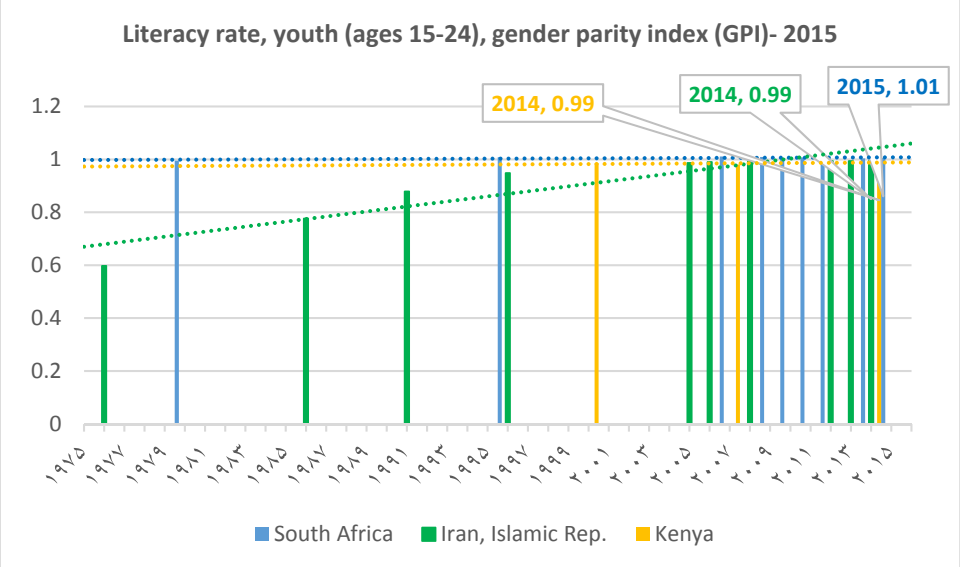

Income share held by third 20%- 2015
2015, 14.6
2014, 15.3
2014, 8.2
South Africa
Iran, Islamic Rep.
Kenya

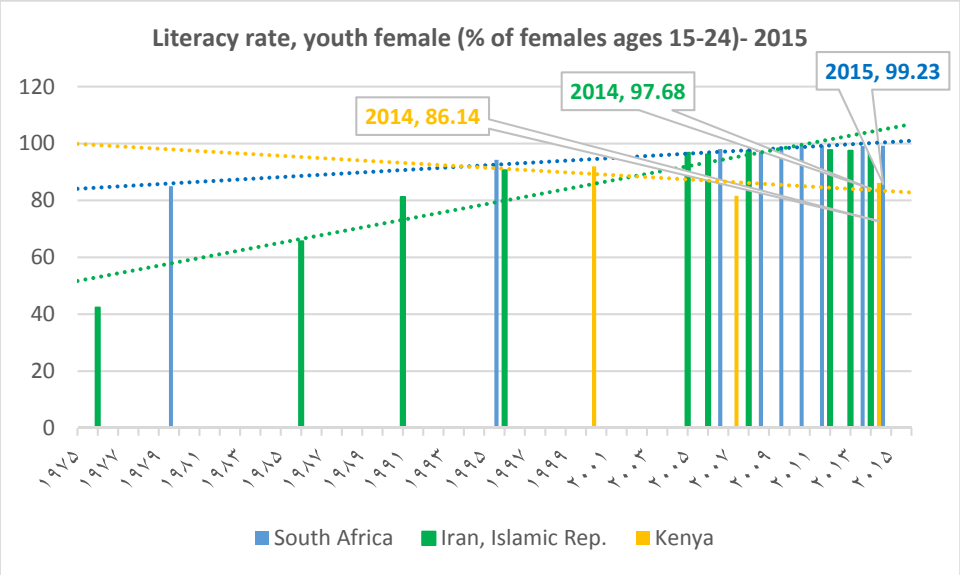

Undisbursed external debt, total (UND, current US$)
Billions
2017, 16.07
2017, 1.22
2017, 0.15
South Africa
Iran, Islamic Rep.
Kenya

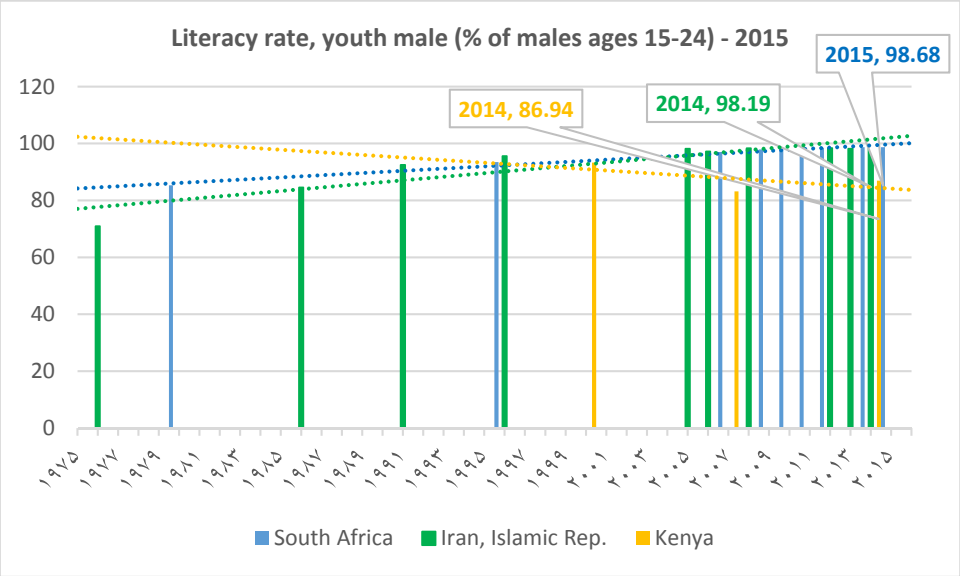

Rural population (% of total population)- 2016
2017, 73.44
2017, 34.15
2017, 22.74
2017, 25.61
South Africa
Germany
Iran, Islamic Rep.
Kenya

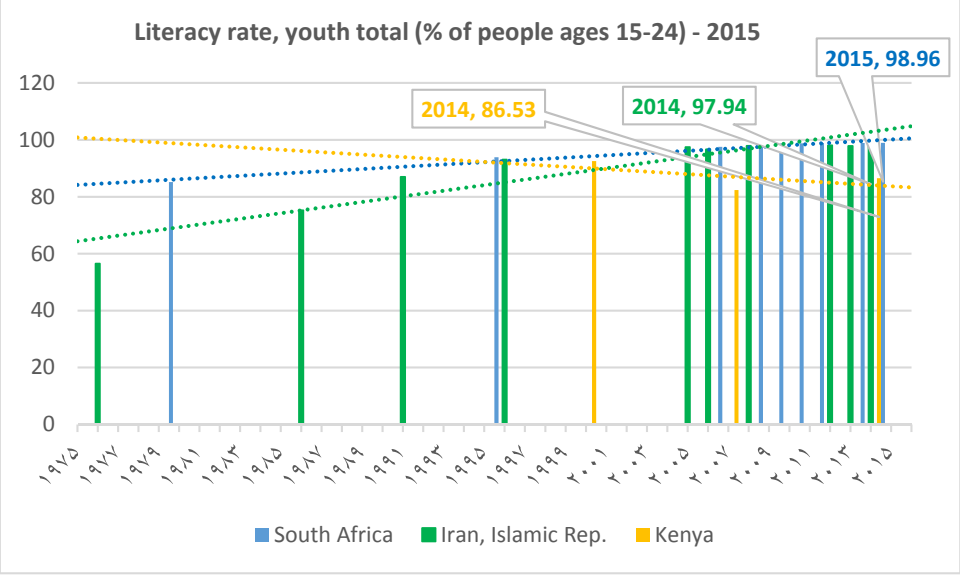

Urban population (% of total)
2017, 77.26
2017, 74.39
2017, 65.85
2017, 26.56
South Africa
Germany
Iran, Islamic Rep.
Kenya

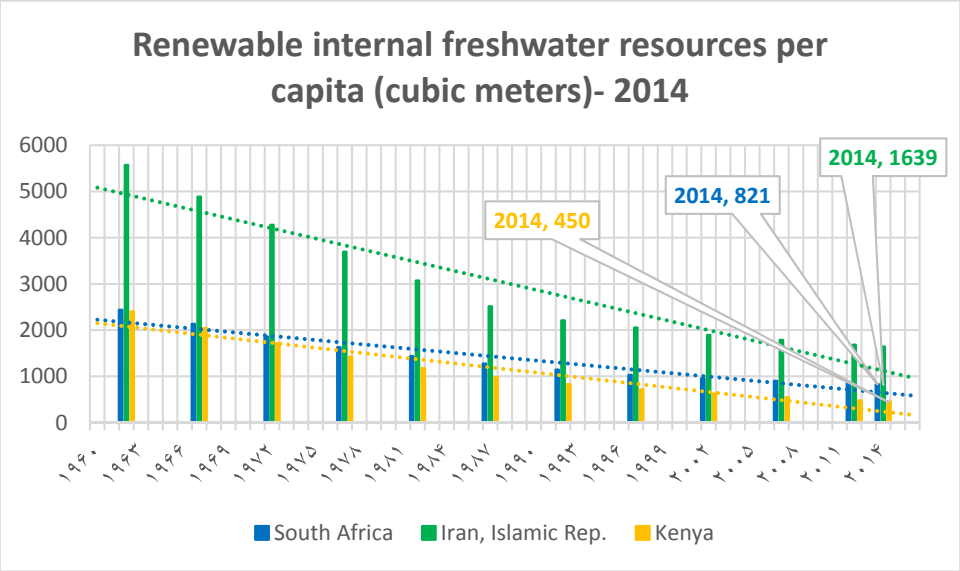

Literacy rate, adult total (% of people ages 15 and above)- 2015
2015, 94.37
2014, 84.71
2014, 78.73
South Africa
Iran, Islamic Rep.
Kenya

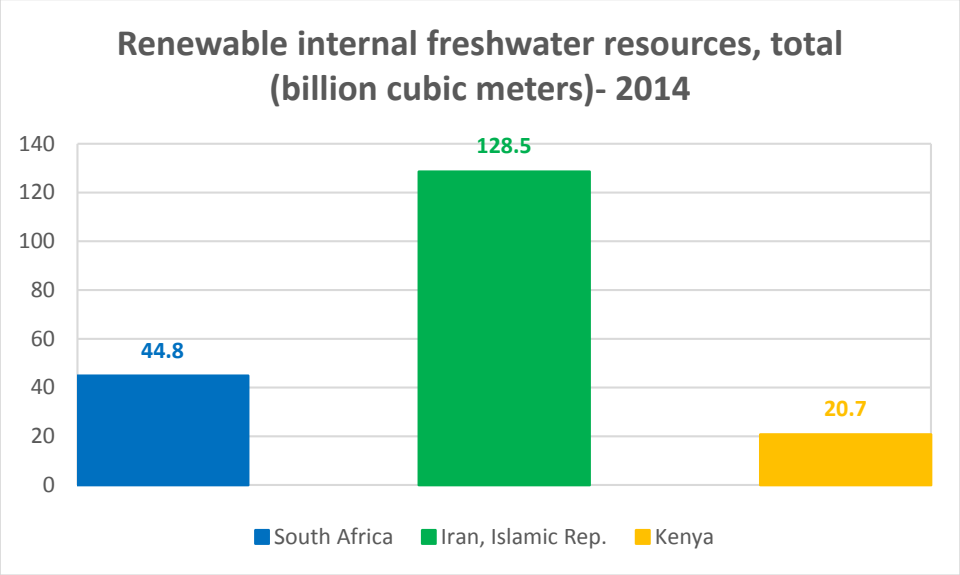

Literacy rate, youth (ages 15-24), gender parity index (GPI)- 2015
2015, 1.01
2014, 0.99
2014, 0.99
South Africa
Iran, Islamic Rep.
Kenya

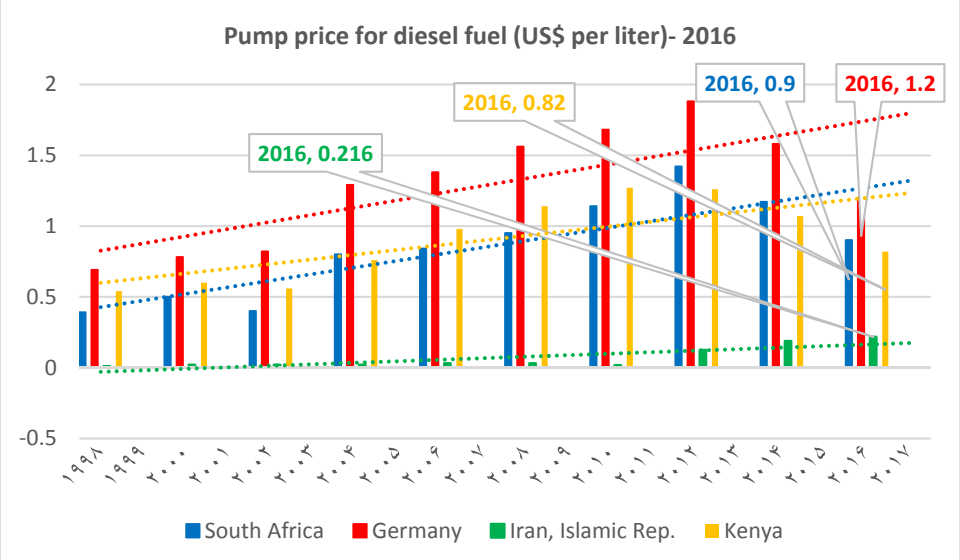

Literacy rate, youth female (% of females ages 15-24)- 2015
2015, 99.23
2014, 97.68
2014, 86.14
120
100
80
60
40
20
0
South Africa
Iran, Islamic Rep.
Kenya

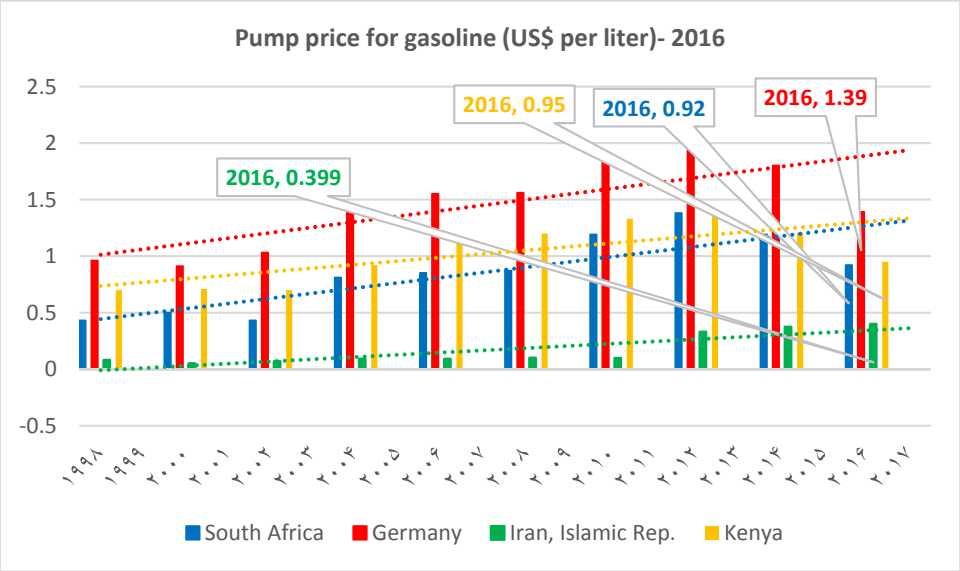

Literacy rate, youth male (% of males ages 15-24) - 2015
2015, 98.68
2014, 98.19
2014, 86.94
120
100
80
60
40
20
0
South Africa
Iran, Islamic Rep.
Kenya

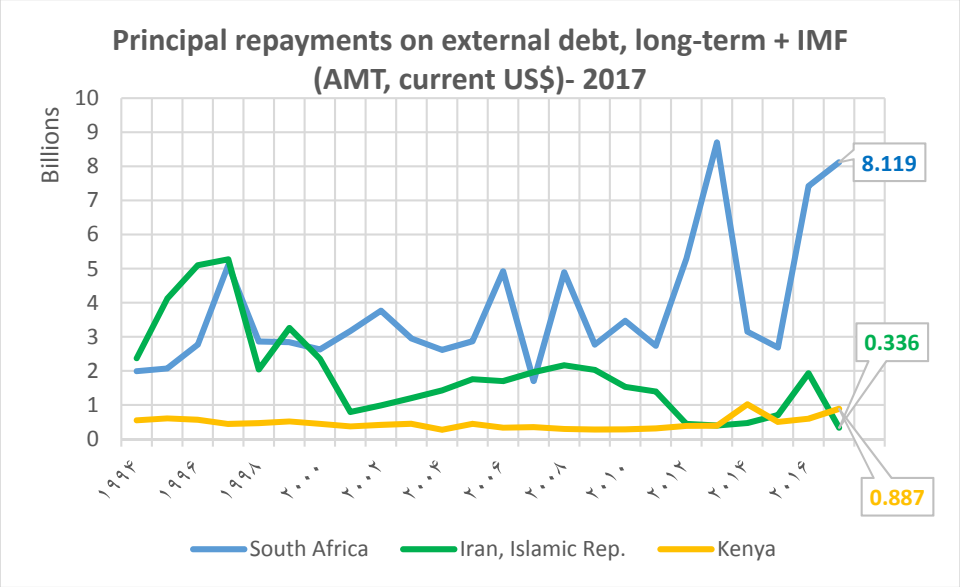

Literacy rate, youth total (% of people ages 15-24) - 2015
2015, 98.96
2014, 97.94
2014, 86.53
120
100
80
60
40
20
0
South Africa
Iran, Islamic Rep.
Kenya

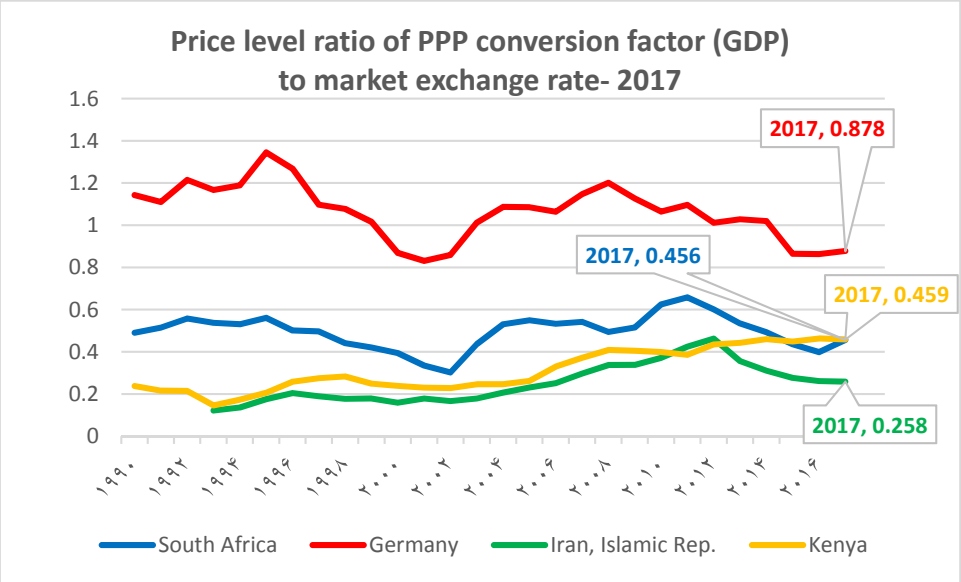

Renewable internal freshwater resources per capita (cubic meters)- 2014
6000
5000
4000
3000
2000
1000
0
2014, 1639
2014, 821
2014, 450
South Africa
Iran, Islamic Rep.
Kenya


Renewable internal freshwater resources, total (billion cubic meters)- 2014
140
120
100
80
60
40
20
0
128.5
44.8
20.7
South Africa
Iran, Islamic Rep.
Kenya


Pump price for diesel fuel (US$ per liter)- 2016
2
1.5
1
0.5
0
-0.5
2016, 0.9
2016, 1.2
2016, 0.82
2016, 0.216
South Africa
Germany
Iran, Islamic Rep.
Kenya

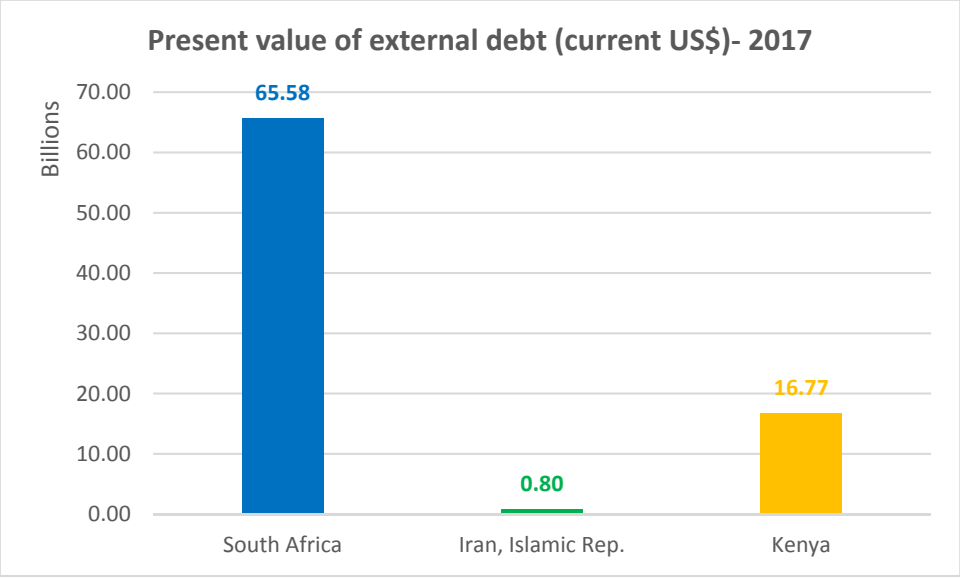

Pump price for gasoline (US$ per liter)- 2016
2016, 0.399
2016, 0.95
2016, 0.92
2016, 1.39
South Africa
Germany
Iran, Islamic Rep.
Kenya

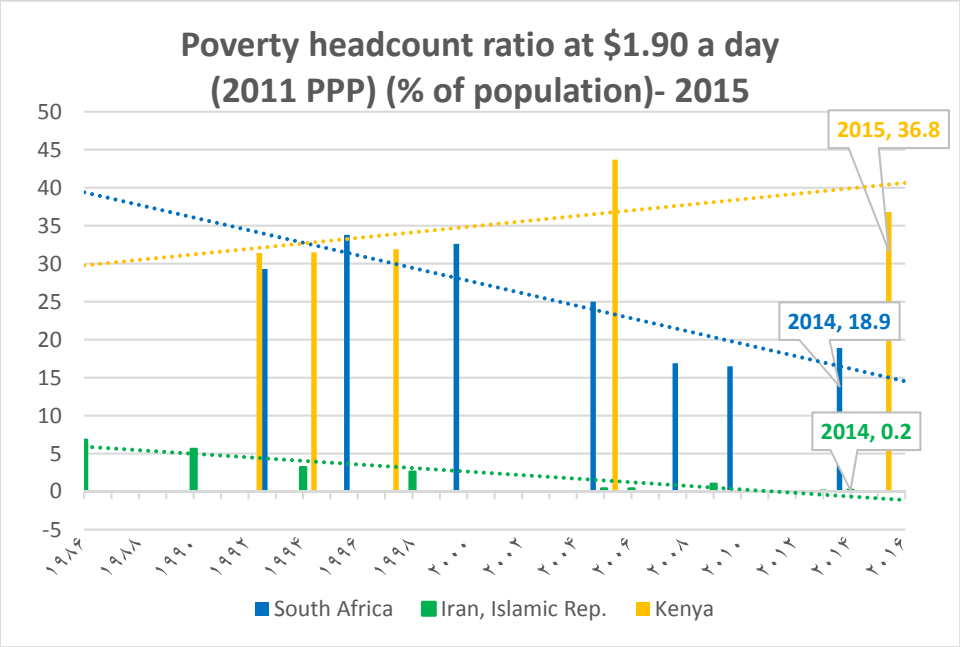

Principal repayments on external debt, long-term + IMF
(AMT, current US$)- 2017
Billions
8.119
0.336
0.887
South Africa
Iran, Islamic Rep.
Kenya



Price level ratio of PPP conversion factor (GDP) to market exchange rate tells "how many dollars are needed to buy a dollar's worth of goods in the country as compared to the United States."

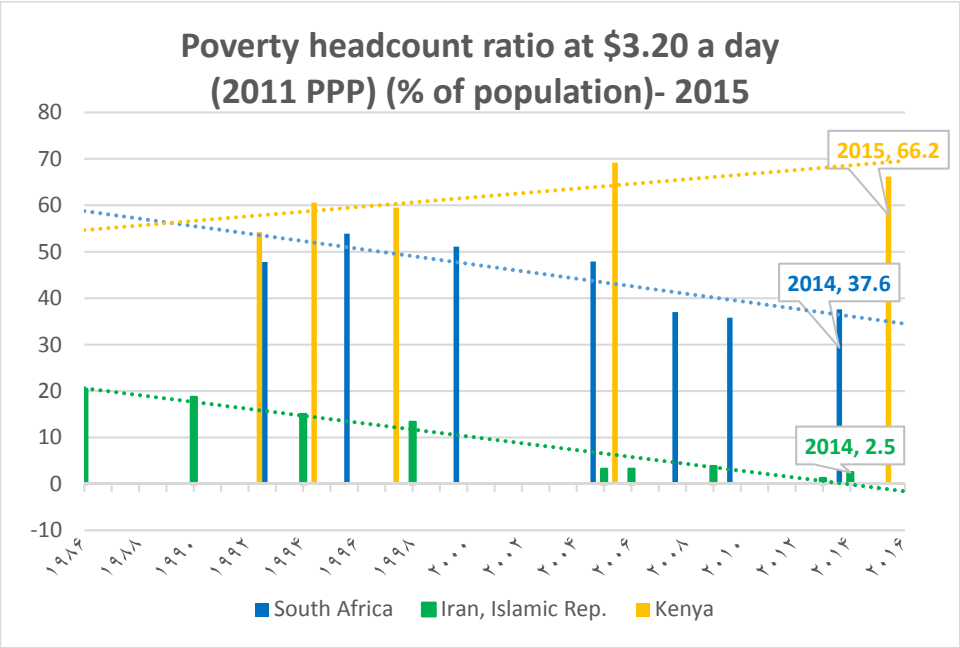
نسبت "سطح قیمت ضریب تبدیل قدرت برابری خرید (تولید ناخالص داخلی)" به "نرخ ارز در بازار یک کشور"؛ مبین تعداد دلارمورد نیاز برای خرید کالا به ارزش یک دلار در آن کشور در مقایسه با آمریکاست.





PPP/purchasing power parity conversion factor is the number of units of a country's currency required to buy the same amounts of goods and services in the domestic market as U.S. dollar would buy in the United States. This **conversion factor is** for GDP.

ضریب تبدیل قدرت برابری خرید (**PPP/purchasing power parity conversion factor**) عبارت است از؛ تعداد واحدهای پول یک کشورمورد نیازبرای خرید میزان مشخصی از کالا و خدمات در بازار داخلی همان کشور در مقایسه با تعداد دلار آمریکا مورد نیاز برای خرید میزان مشابه از کالا و خدمات در کشور آمریکا. از این ضریب تبدیل برای محاسبه "تولید ناخالص داخلی/GDP" هر کشور استفاده می گردد.



PPP/purchasing power parity conversion factor is the number of units of a country's currency required to buy the same amounts of goods and services in the domestic market as U.S. dollar would buy in the United States. This **conversion factor is** for GDP.

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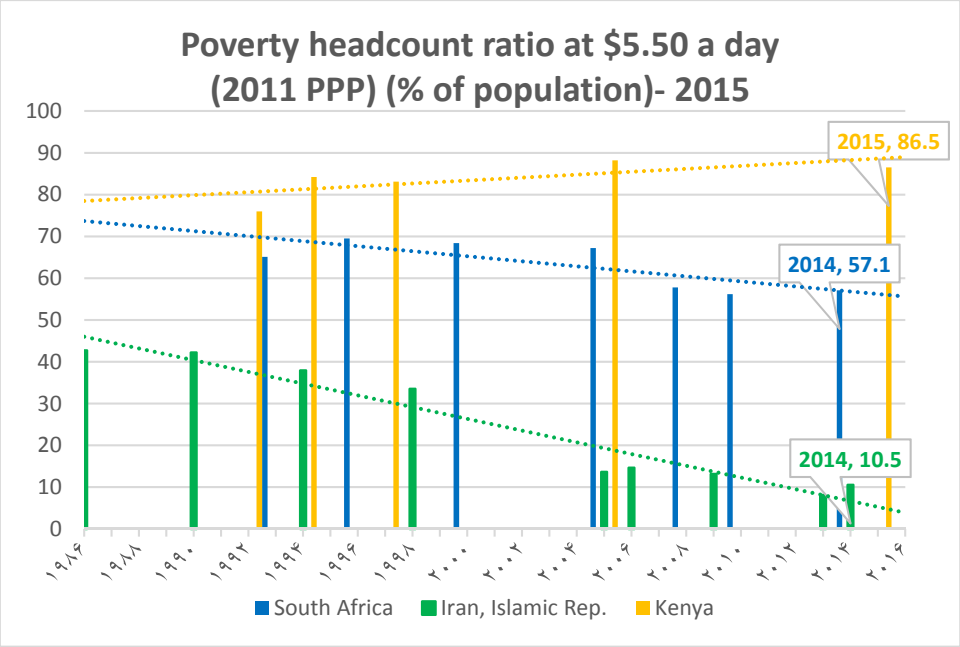
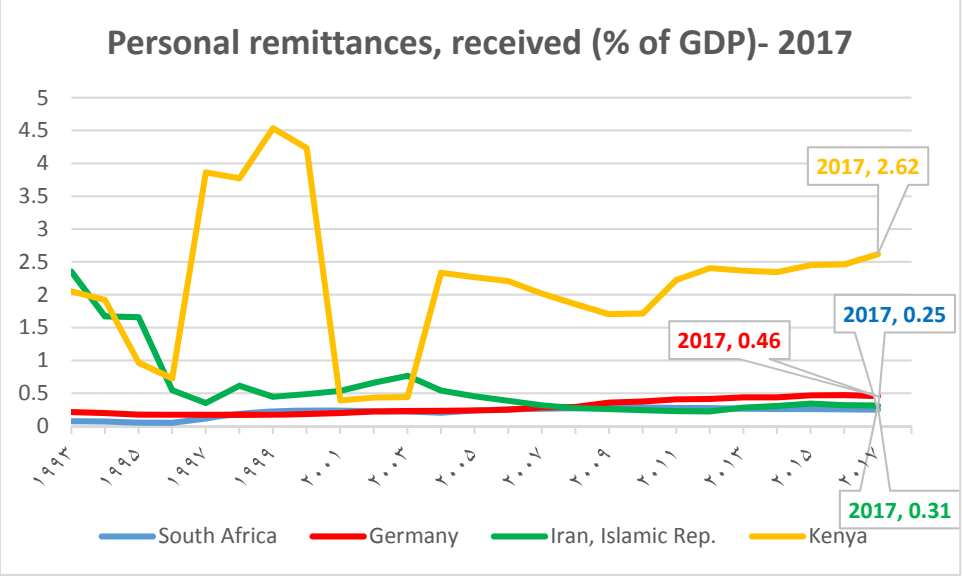
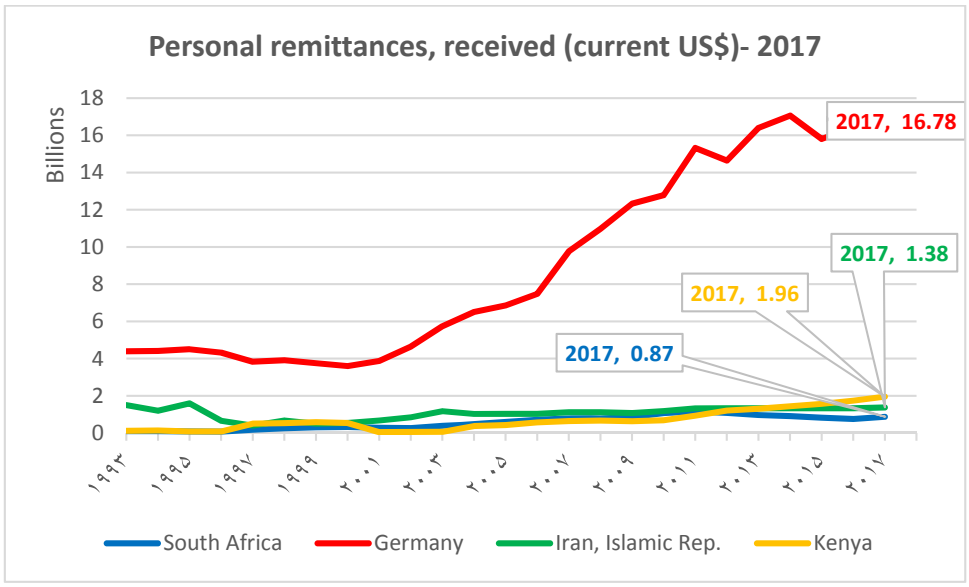
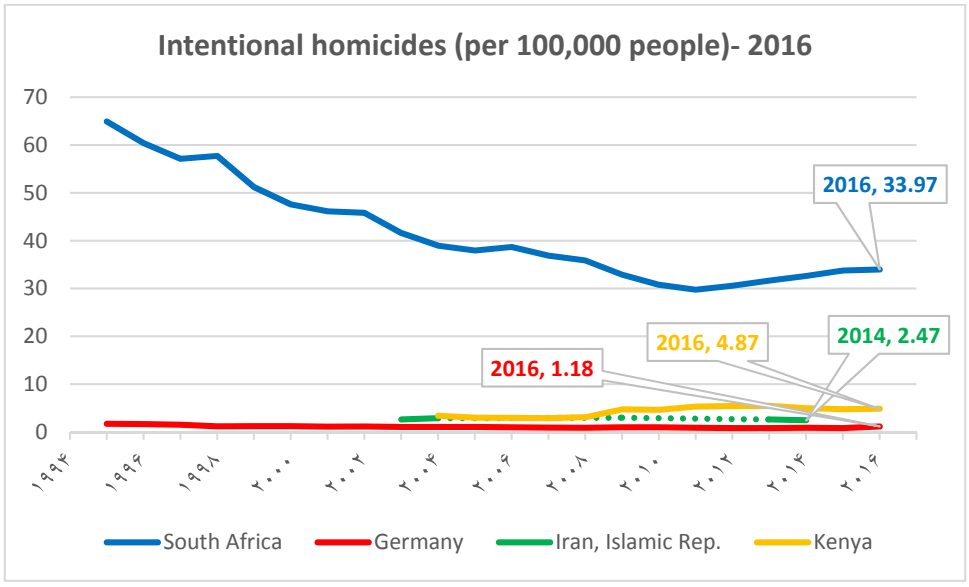


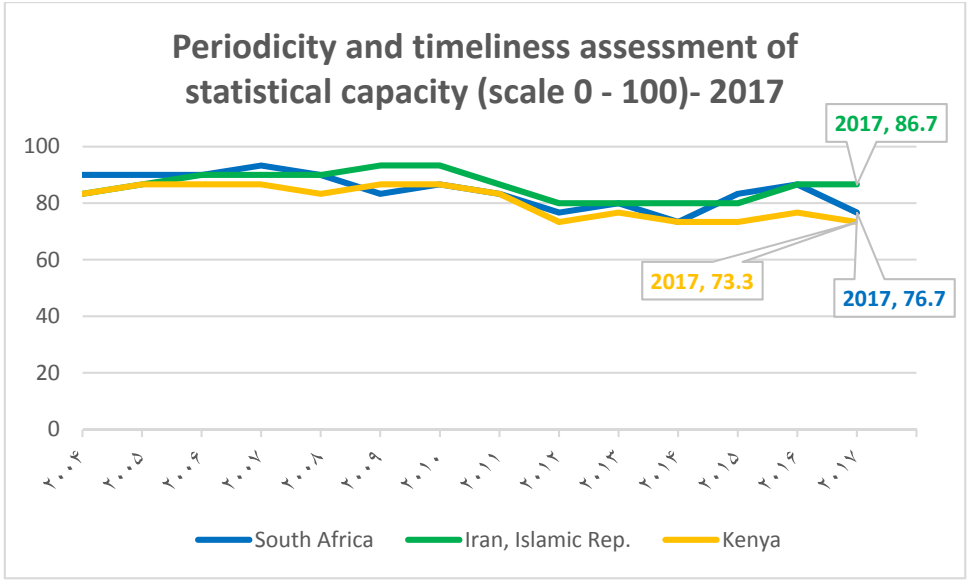
PPP/purchasing power parity conversion factor is the number of units of a country's currency required to buy the same amounts of goods and services in the domestic market as U.S. dollar would buy in the United States. This **conversion factor is** for GDP.

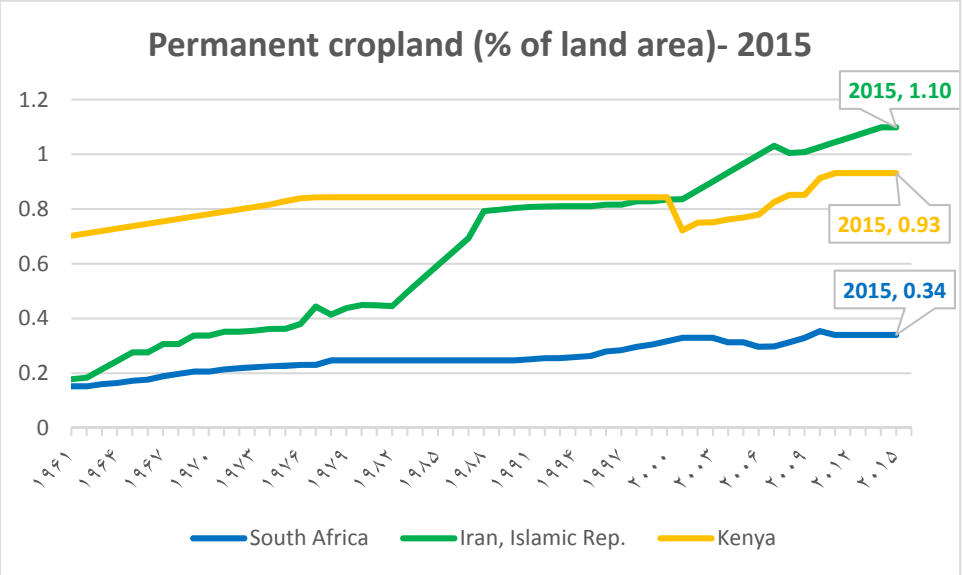
ضریب تبدیل قدرت برابری خرید (**PPP/purchasing power parity conversion factor**) عبارت است از؛ تعداد واحدهای پول یک کشورمورد نیازبرای خرید میزان مشخصی از کالا و خدمات در بازار داخلی همان کشور در مقایسه با تعداد دلار آمریکا مورد نیاز برای خرید میزان مشابه از کالا و خدمات در کشور آمریکا. از این ضریب تبدیل برای محاسبه "تولید ناخالص داخلی/GDP" هر کشور استفاده می گردد.



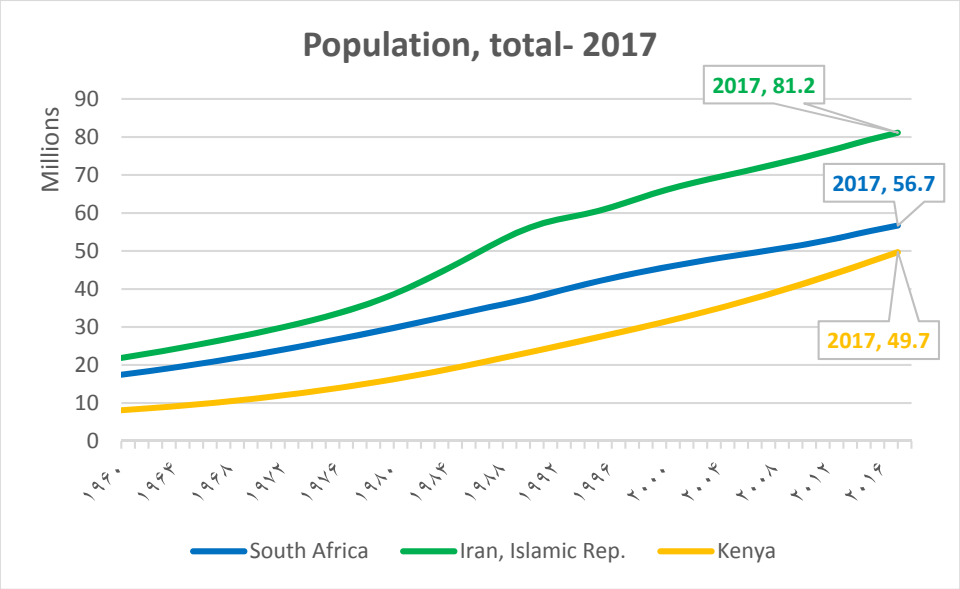

Personal remittances, received (current US$)- 2017
Billions
18
16
14
12
10
8
6
4
2
0
2017, 16.78
2017, 1.38
2017, 1.96
2017, 0.87
South Africa
Germany
Iran, Islamic Rep.
Kenya

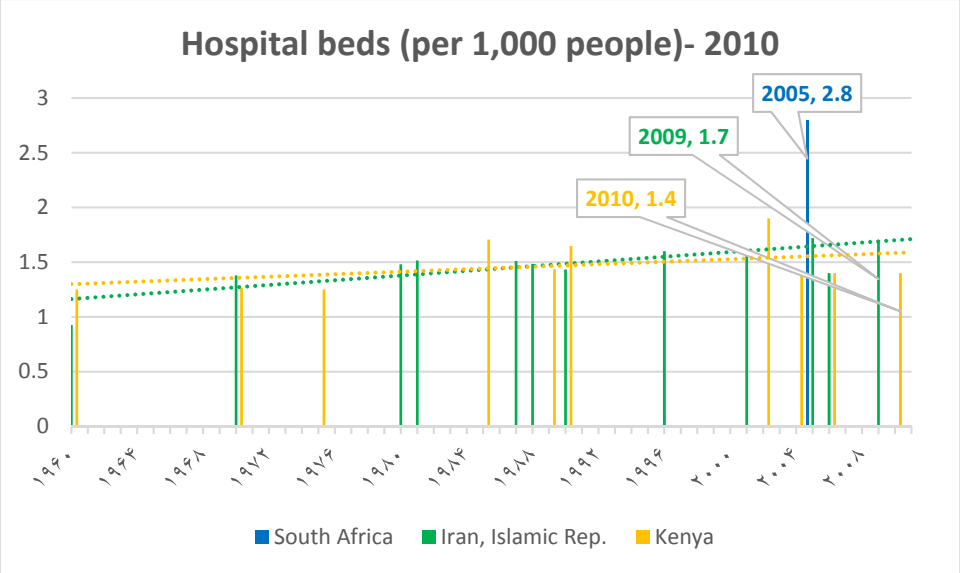

Intentional homicides (per 100,000 people)- 2016
70
60
50
40
30
20
10
0
2016, 33.97
2016, 4.87
2014, 2.47
2016, 1.18
South Africa
Germany
Iran, Islamic Rep.
Kenya

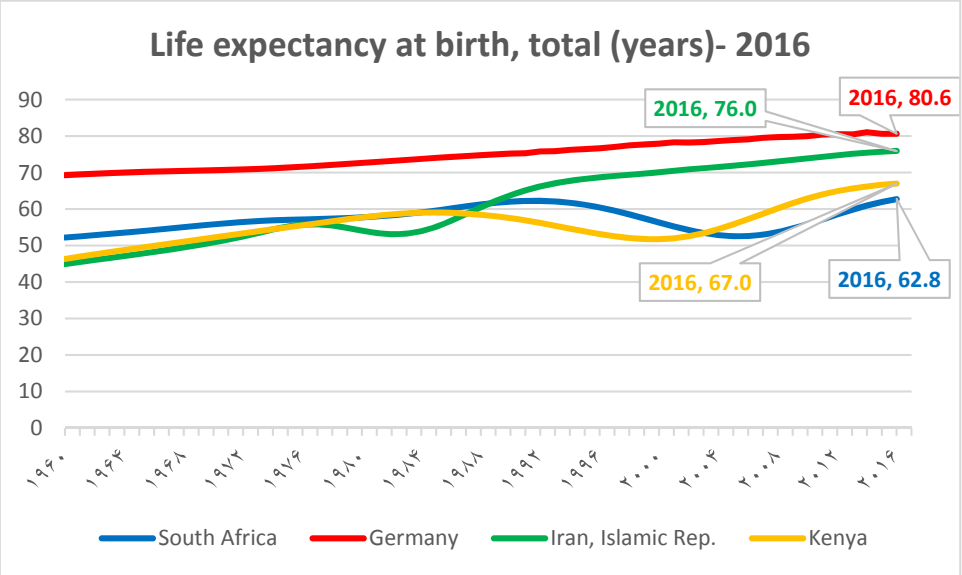

Periodicity and timeliness assessment of statistical capacity (scale 0 - 100)- 2017
100
80
60
40
20
0
2017, 86.7
2017, 73.3
2017, 76.7
South Africa
Iran, Islamic Rep.
Kenya

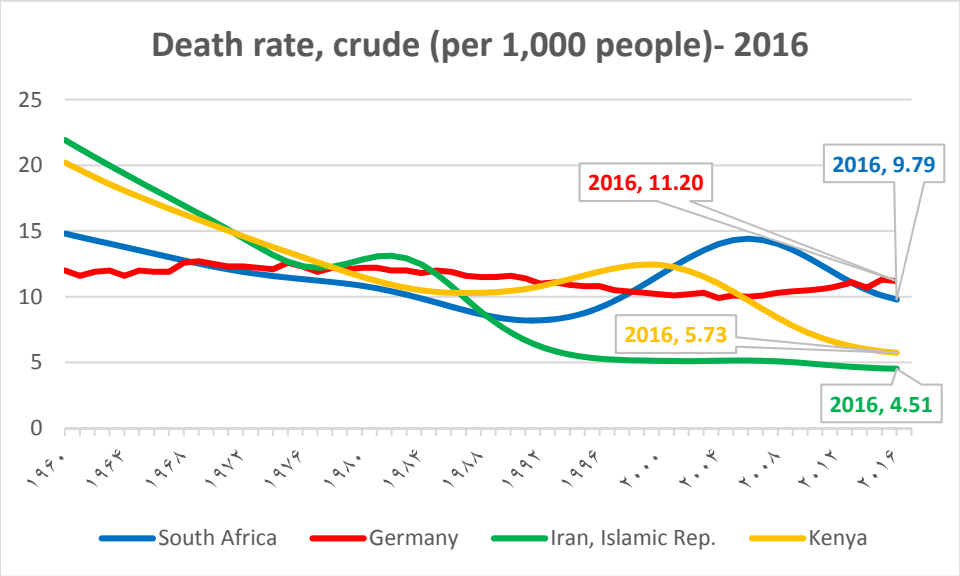

Permanent cropland (% of land area)- 2015
1.2
1
0.8
0.6
0.4
0.2
0
2015, 1.10
2015, 0.93
2015, 0.34
South Africa
Iran, Islamic Rep.
Kenya

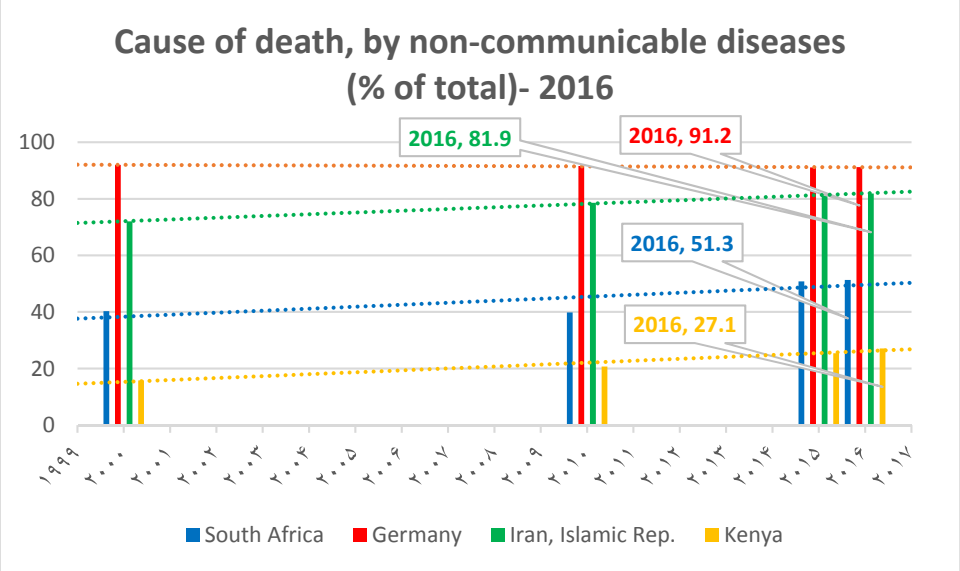
HEALTH

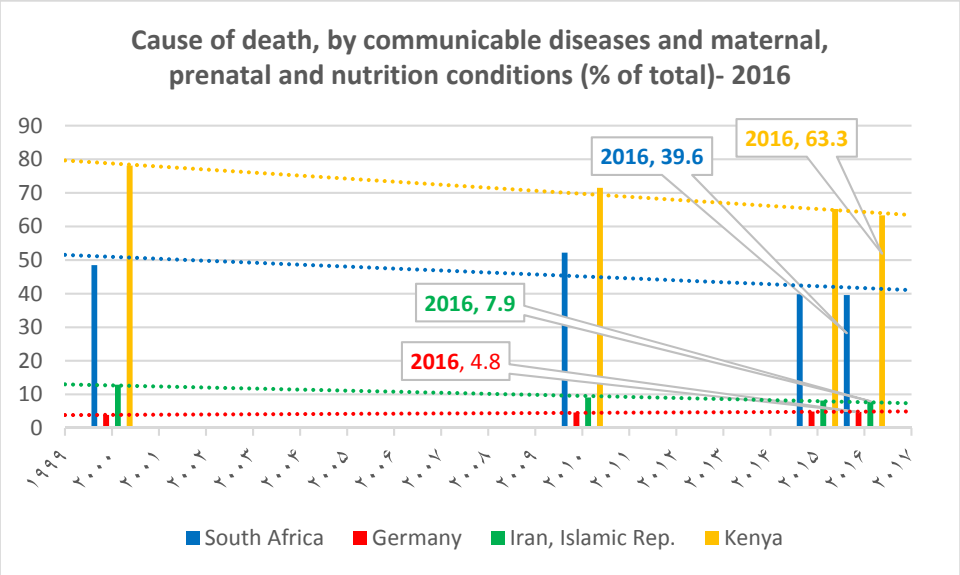

Population, total- 2017
Millions
90
80
70
60
50
40
30
20
10
0
2017, 81.2
2017, 56.7
2017, 49.7
South Africa
Iran, Islamic Rep.
Kenya

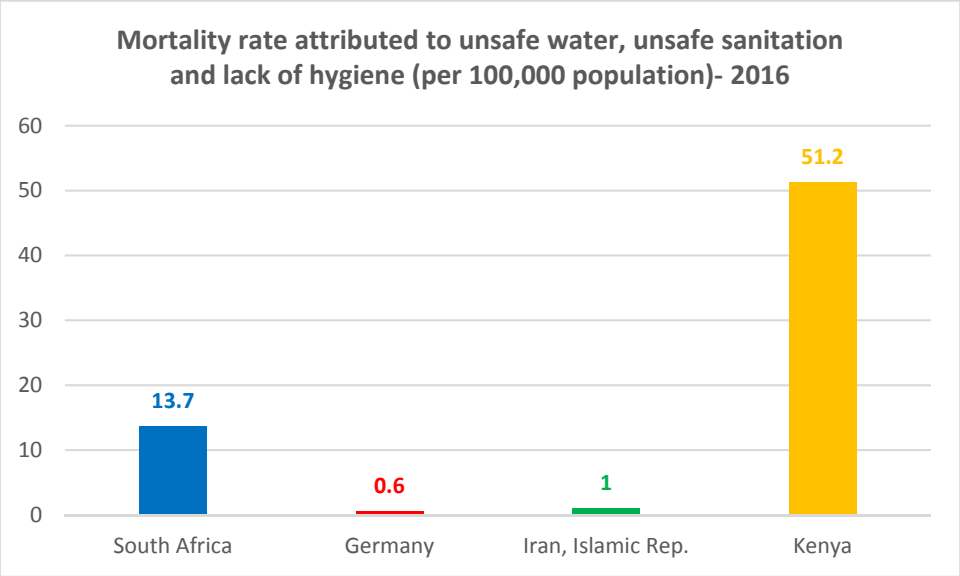

Hospital beds (per 1,000 people)- 2010
3
2.5
2
1.5
1
0.5
0
2005, 2.8
2009, 1.7
2010, 1.4
South Africa
Iran, Islamic Rep.
Kenya

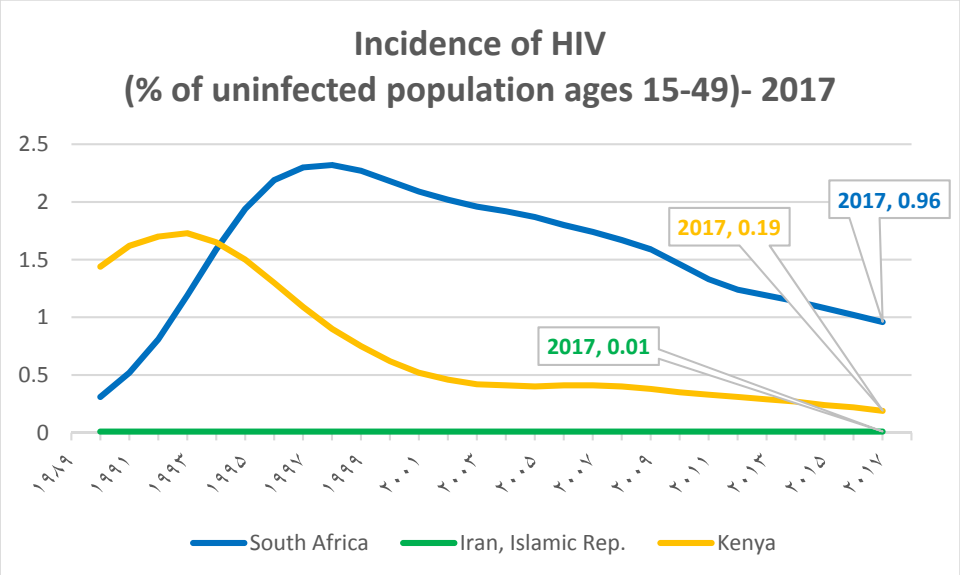

Life expectancy at birth, total (years)- 2016
90
80
70
60
50
40
30
20
10
0
2016, 76.0
2016, 80.6
2016, 67.0
2016, 62.8
South Africa
Germany
Iran, Islamic Rep.
Kenya

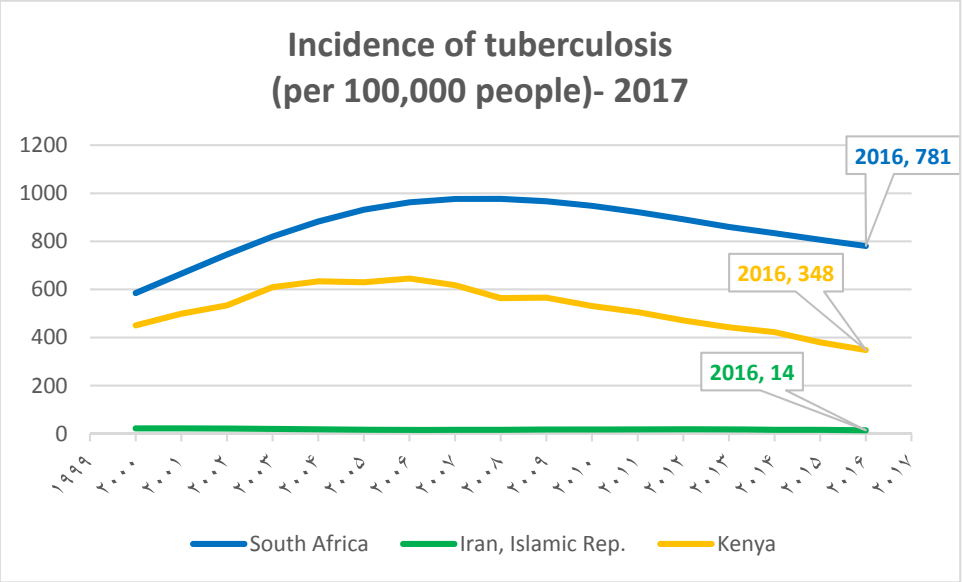

Death rate, crude (per 1,000 people)- 2016
25
20
15
10
5
0
2016, 11.20
2016, 9.79
2016, 5.73
2016, 4.51
South Africa
Germany
Iran, Islamic Rep.
Kenya

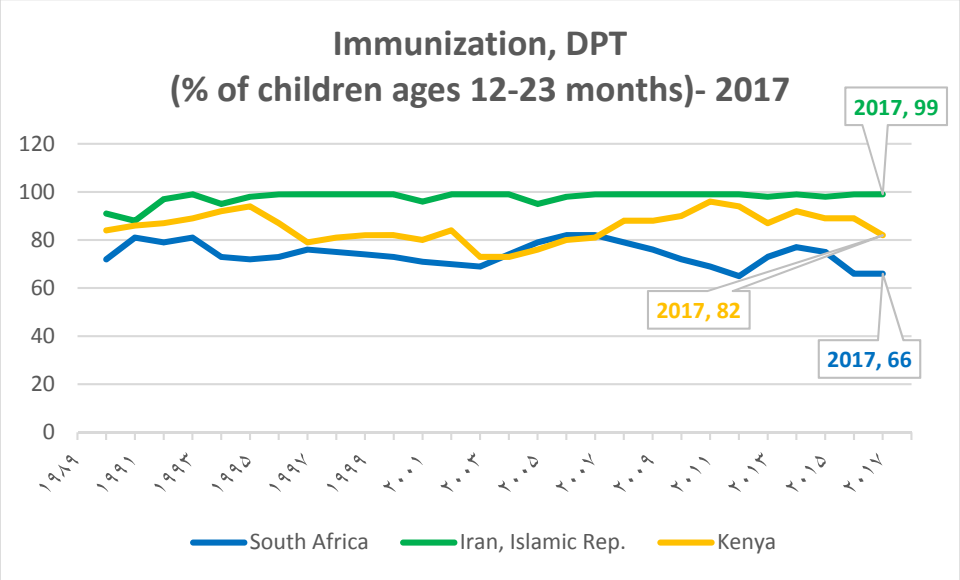

Cause of death, by non-communicable diseases
(% of total)- 2016
100
80
60
40
20
0
2016, 81.9
2016, 91.2
2016, 51.3
2016, 27.1
South Africa
Germany
Iran, Islamic Rep.
Kenya

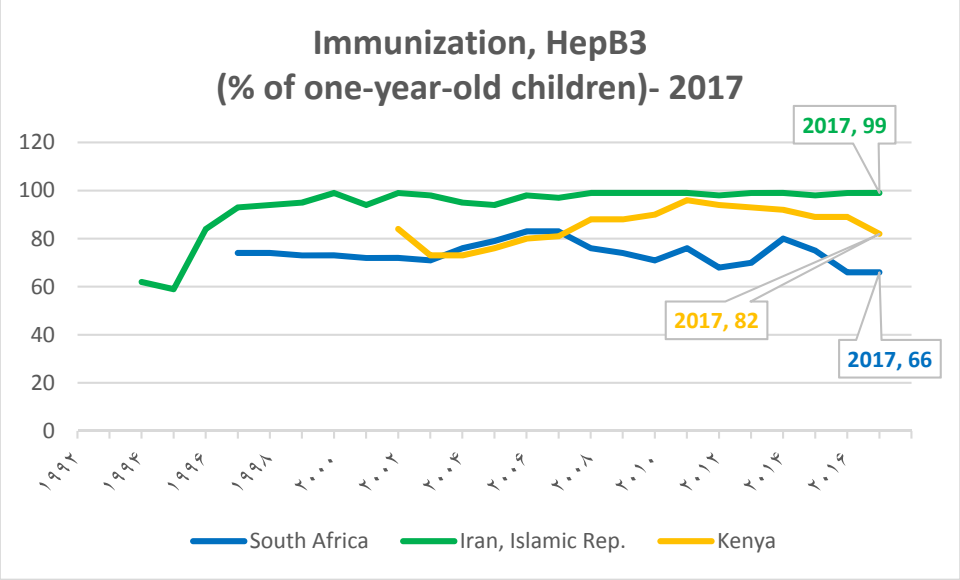

Cause of death, by communicable diseases and maternal, prenatal and nutrition conditions (% of total)- 2016
2016, 63.3
2016, 39.6
2016, 7.9
2016, 4.8
South Africa
Germany
Iran, Islamic Rep.
Kenya

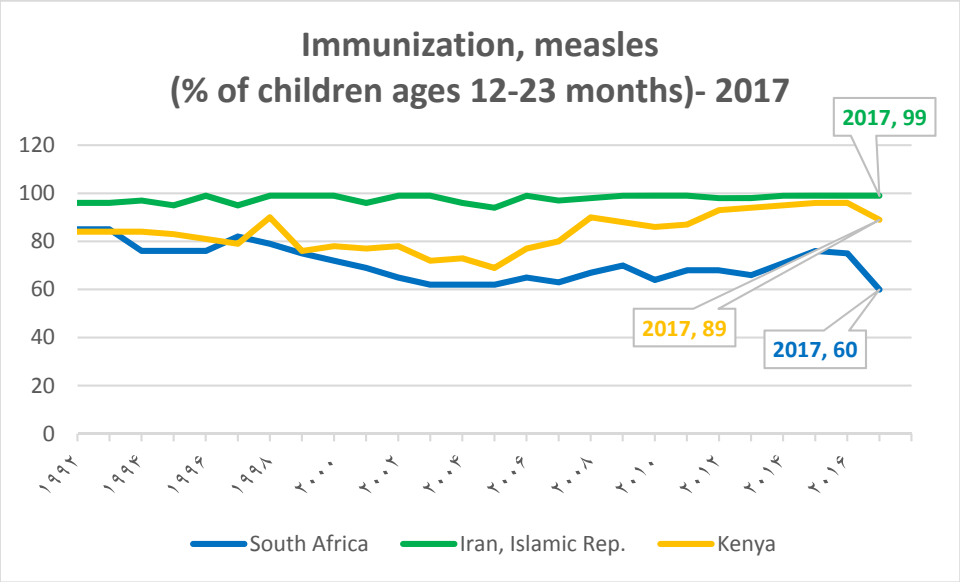

Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (per 100,000 population)- 2016
13.7
0.6
1
51.2
South Africa
Germany
Iran, Islamic Rep.
Kenya

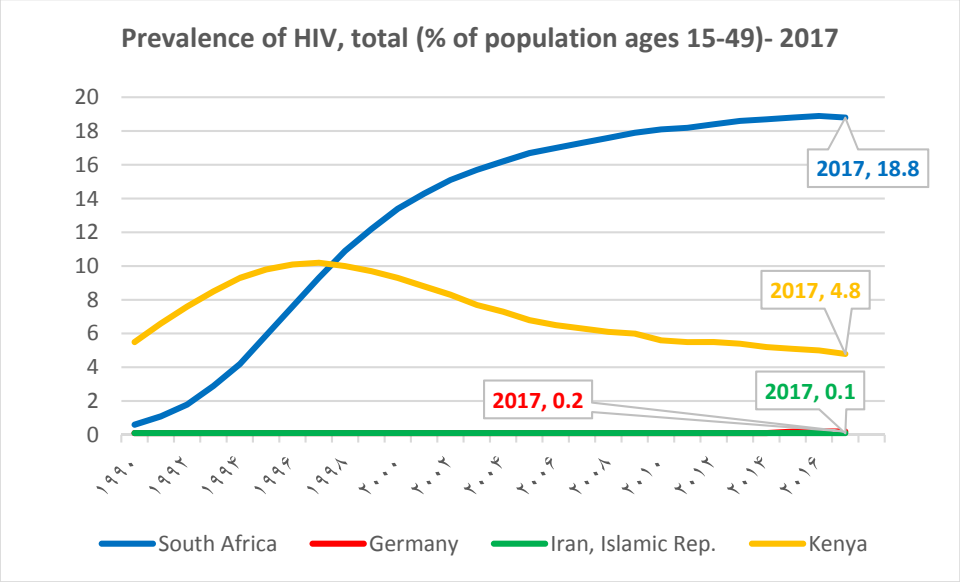

Incidence of HIV
(% of uninfected population ages 15-49)- 2017
2017, 0.96
2017, 0.19
2017, 0.01
South Africa
Iran, Islamic Rep.
Kenya

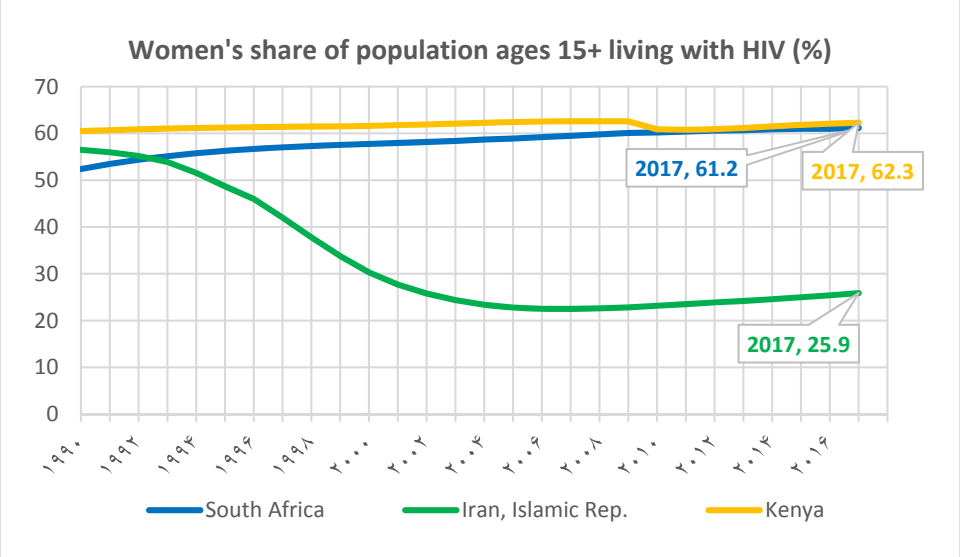

Incidence of tuberculosis
(per 100,000 people)- 2017
1200
1000
800
600
400
200
0
2016, 781
2016, 348
2016, 14
South Africa
Iran, Islamic Rep.
Kenya

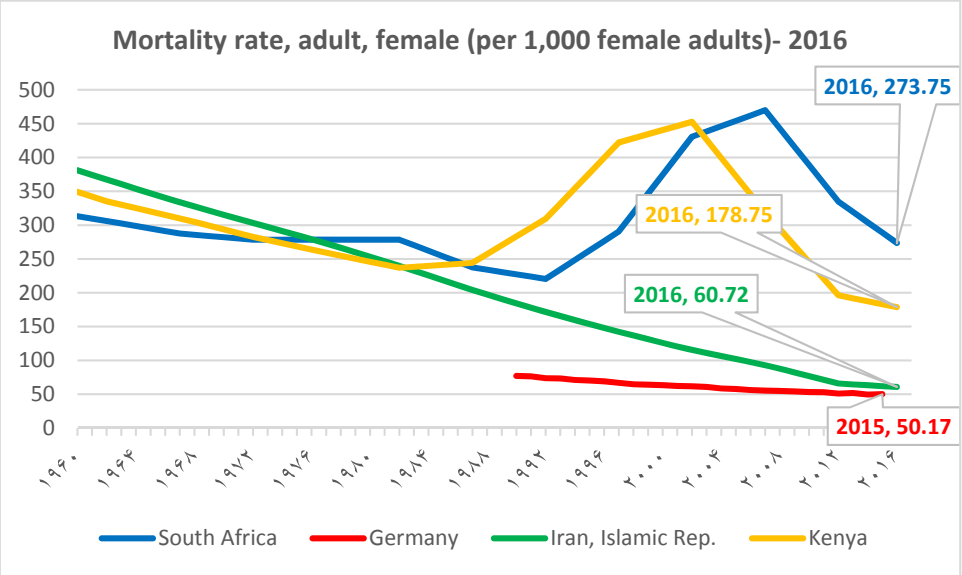

Immunization, DPT
(% of children ages 12-23 months)- 2017
120
100
80
60
40
20
0
2017, 99
2017, 82
2017, 66
South Africa
Iran, Islamic Rep.
Kenya

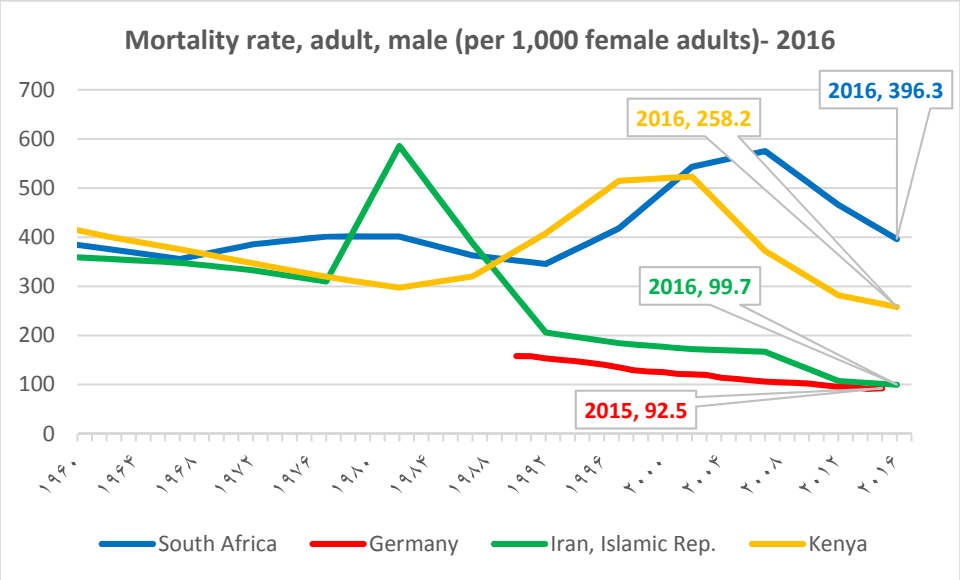

Immunization, HepB3
(% of one-year-old children)- 2017
120
100
80
60
40
20
0
2017, 99
2017, 82
2017, 66
South Africa
Iran, Islamic Rep.
Kenya

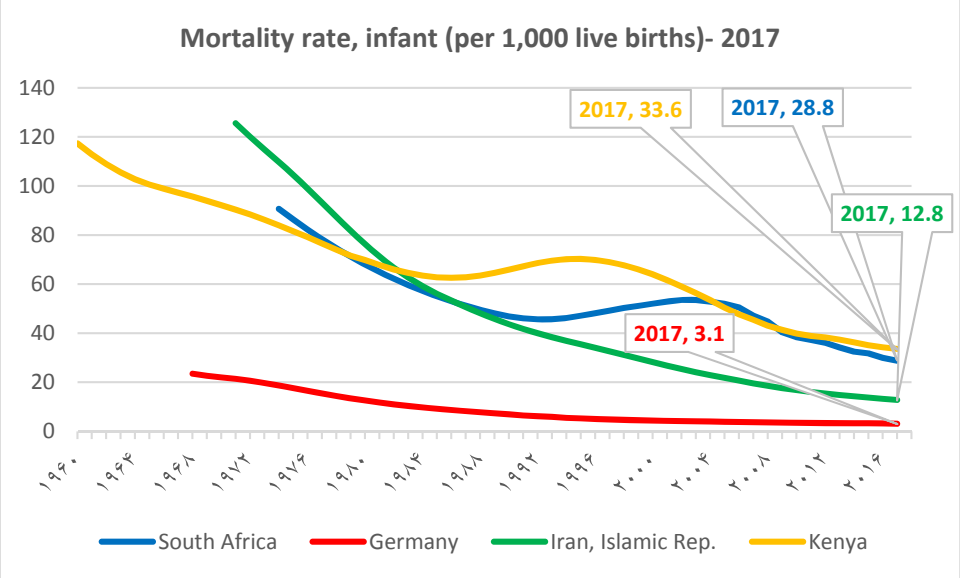

Immunization, measles
(% of children ages 12-23 months)- 2017
2017, 99
2017, 89
2017, 60
120
100
80
60
40
20
0
South Africa
Iran, Islamic Rep.
Kenya

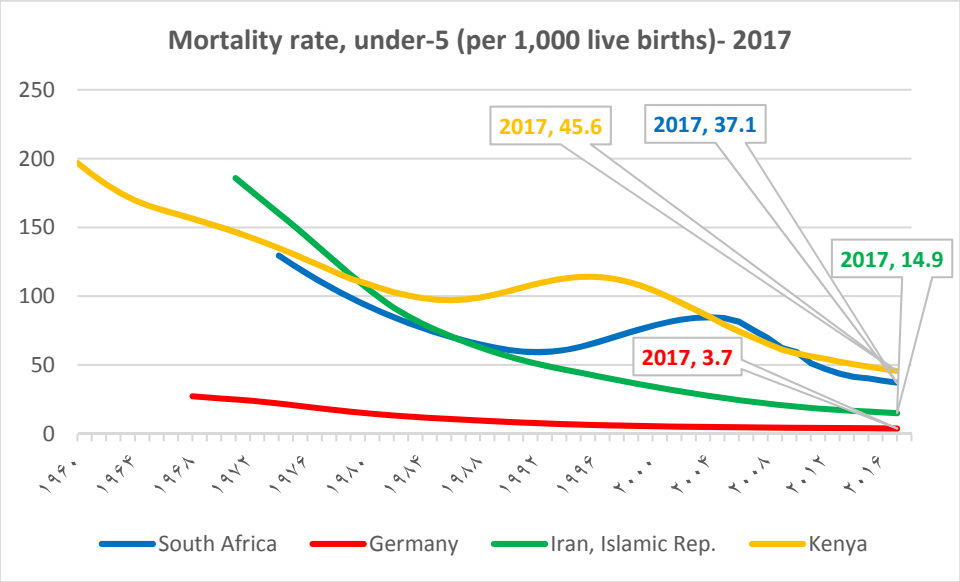

Prevalence of HIV, total (% of population ages 15-49)- 2017
2017, 18.8
2017, 4.8
2017, 0.2
2017, 0.1
20
18
16
14
12
10
8
6
4
2
0
South Africa
Germany
Iran, Islamic Rep.
Kenya

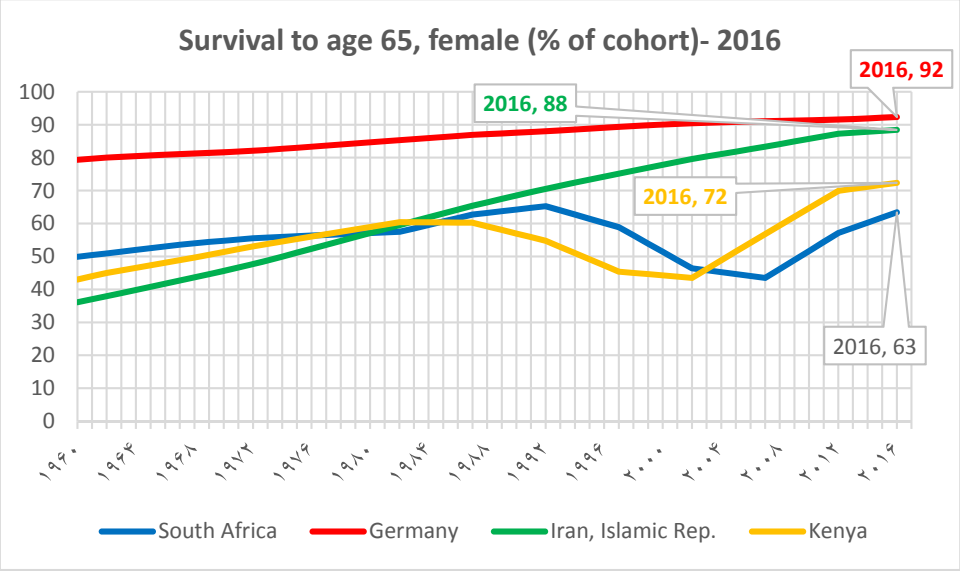

Women's share of population ages 15+ living with HIV (%)
2017, 61.2
2017, 62.3
2017, 25.9
70
60
50
40
30
20
10
0
South Africa
Iran, Islamic Rep.
Kenya

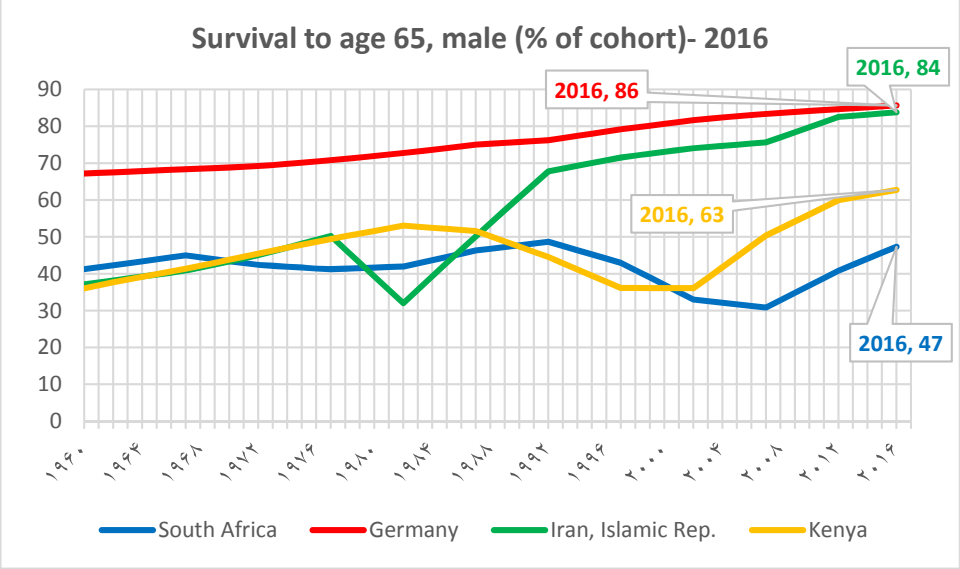

Mortality rate, adult, female (per 1,000 female adults)- 2016
500
450
400
350
300
250
200
150
100
50
0
2016, 273.75
2016, 178.75
2016, 60.72
2015, 50.17
South Africa
Germany
Iran, Islamic Rep.
Kenya

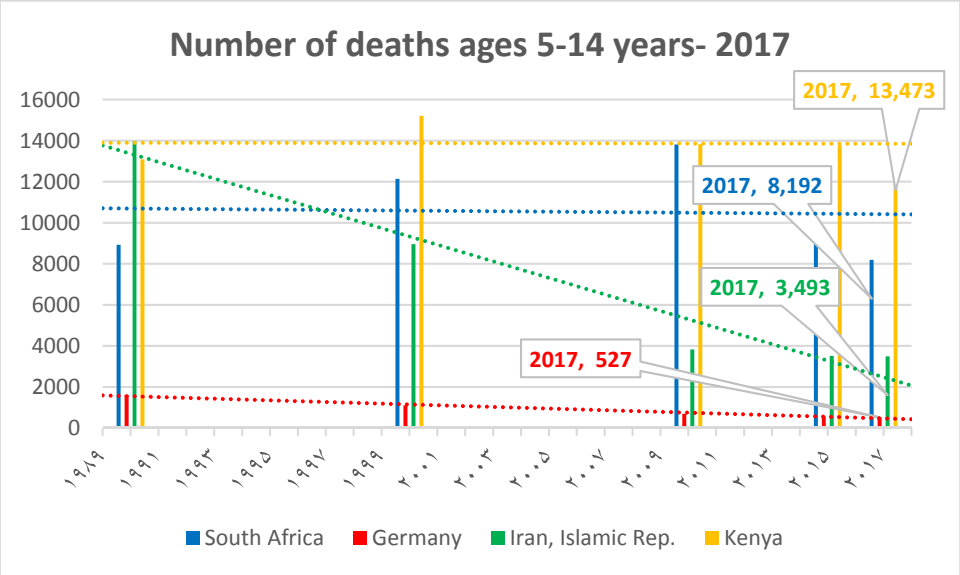

Mortality rate, adult, male (per 1,000 female adults)- 2016
700
600
500
400
300
200
100
0
2016, 396.3
2016, 258.2
2016, 99.7
2015, 92.5
South Africa
Germany
Iran, Islamic Rep.
Kenya

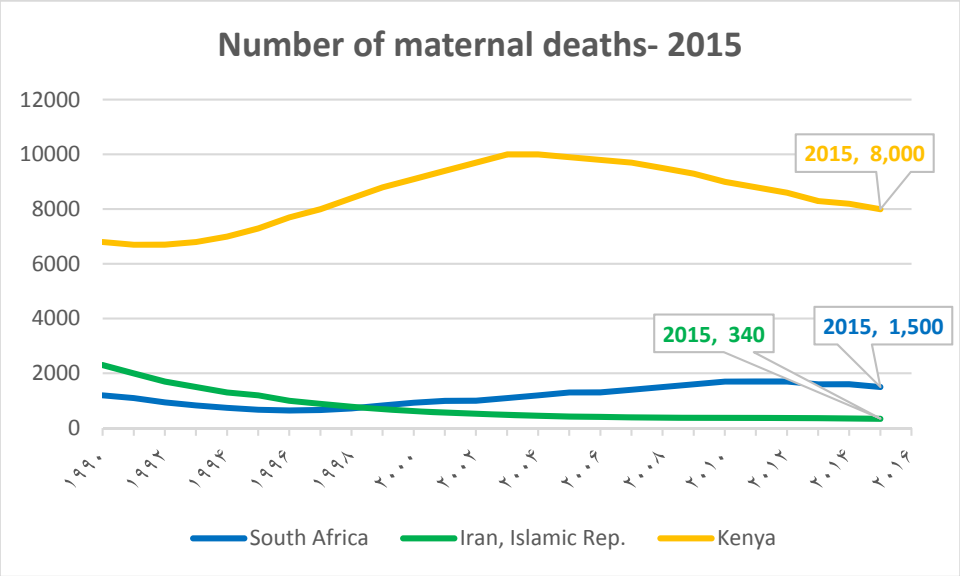

Mortality rate, infant (per 1,000 live births)- 2017
140
120
100
80
60
40
20
0
2017, 33.6
2017, 28.8
2017, 12.8
2017, 3.1
South Africa
Germany
Iran, Islamic Rep.
Kenya

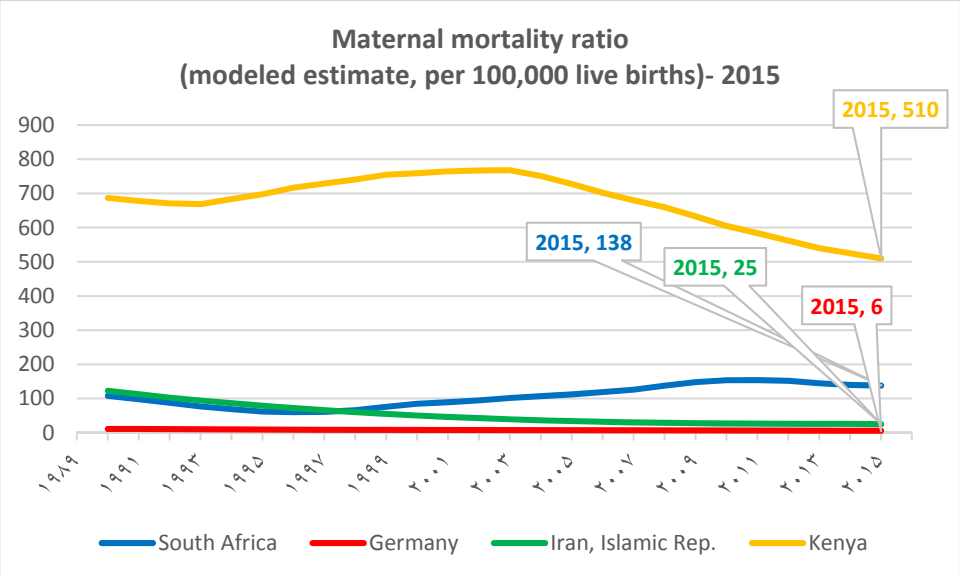

Mortality rate, under-5 (per 1,000 live births)- 2017
250
200
150
100
50
0
2017, 45.6
2017, 37.1
2017, 14.9
2017, 3.7
South Africa
Germany
Iran, Islamic Rep.
Kenya

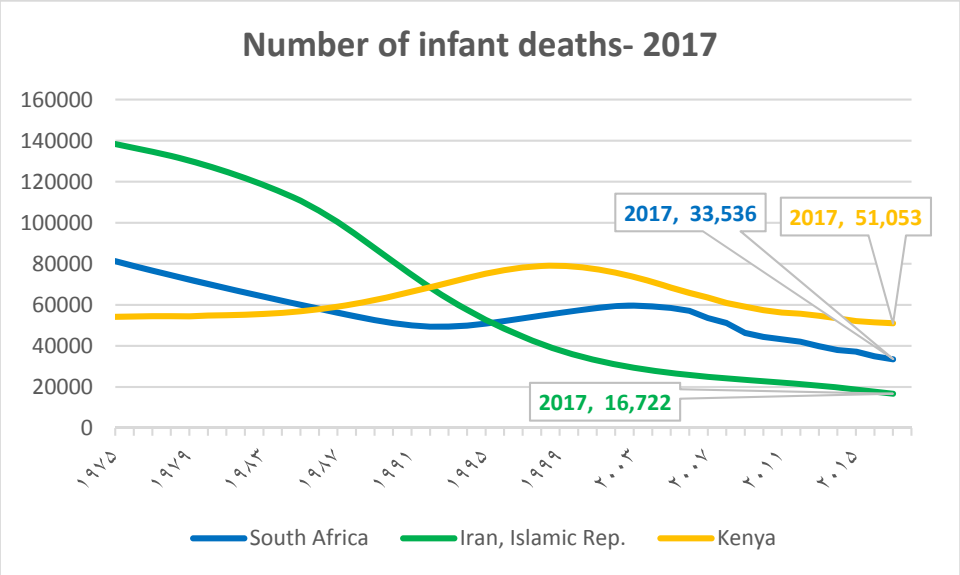

Survival to age 65, female (% of cohort)- 2016
100
90
80
70
60
50
40
30
20
10
0
2016, 92
2016, 88
2016, 72
2016, 63
South Africa
Germany
Iran, Islamic Rep.
Kenya

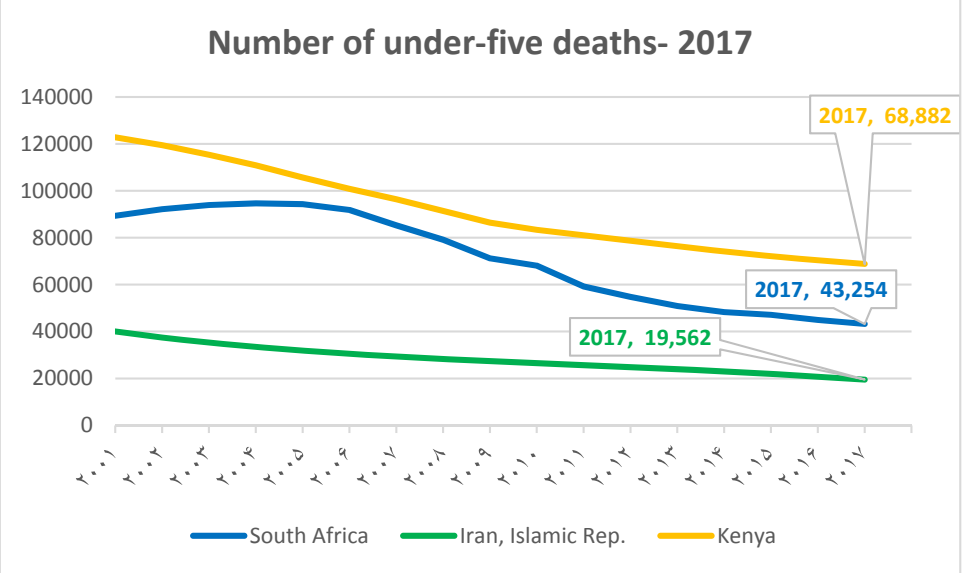

Survival to age 65, male (% of cohort)- 2016
90
80
70
60
50
40
30
20
10
0
2016, 84
2016, 86
2016, 63
2016, 47
South Africa
Germany
Iran, Islamic Rep.
Kenya

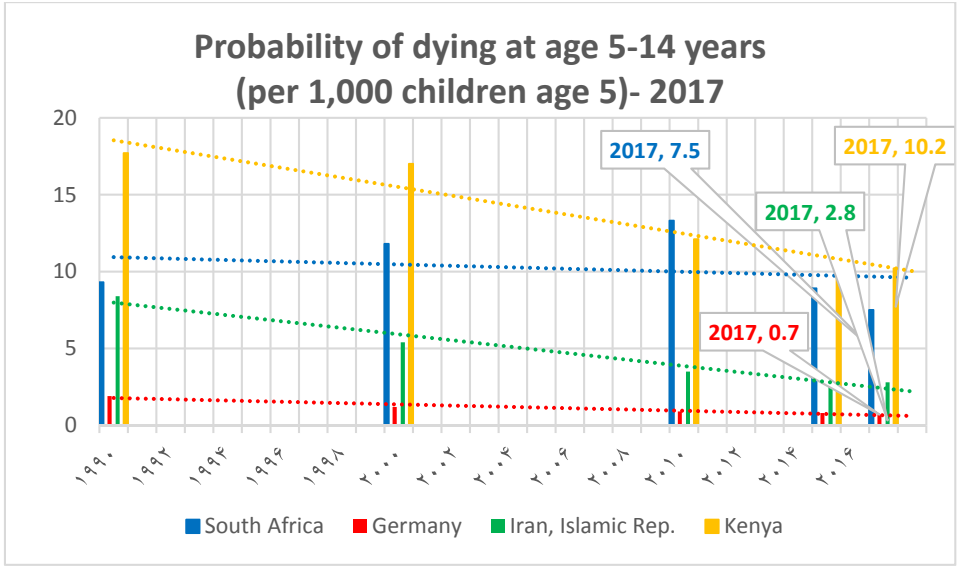

Number of deaths ages 5-14 years- 2017
16000
14000
12000
10000
8000
6000
4000
2000
0
2017, 13,473
2017, 8,192
2017, 3,493
2017, 527
South Africa
Germany
Iran, Islamic Rep.
Kenya

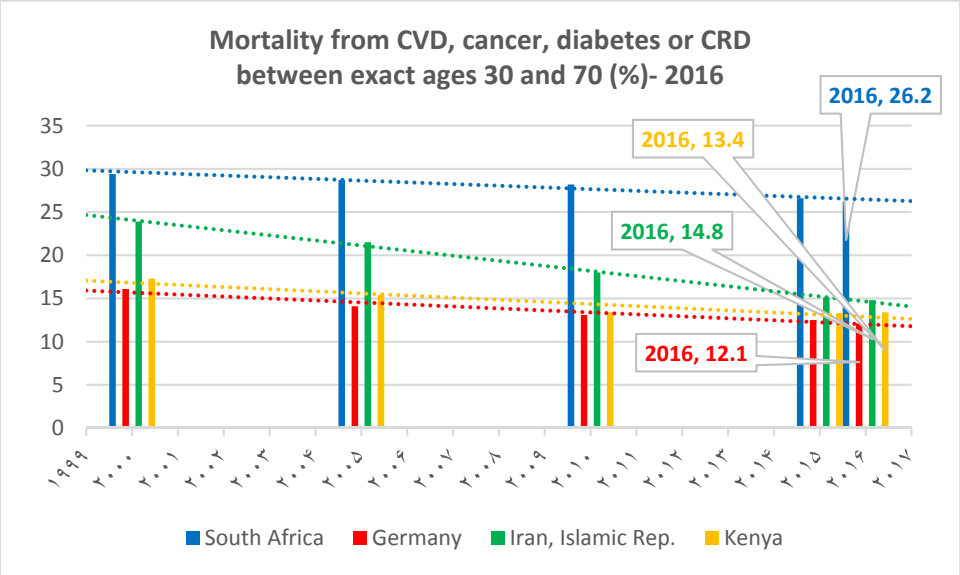

Number of maternal deaths- 2015
12000
10000
8000
6000
4000
2000
0
2015, 8,000
2015, 340
2015, 1,500
South Africa
Iran, Islamic Rep.
Kenya

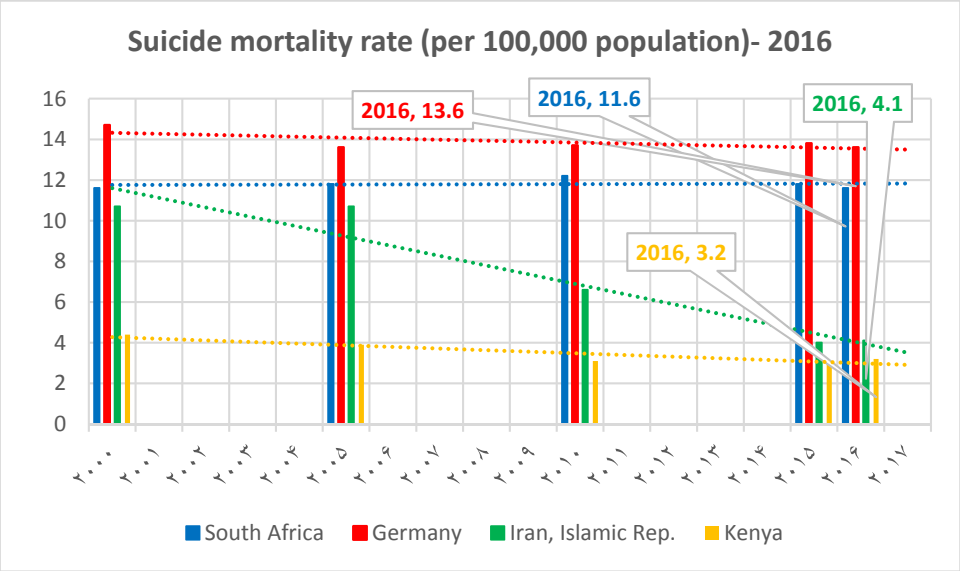

Maternal mortality ratio
(modeled estimate, per 100,000 live births)- 2015
900
800
700
600
500
400
300
200
100
0
2015, 510
2015, 138
2015, 25
2015, 6
South Africa
Germany
Iran, Islamic Rep.
Kenya

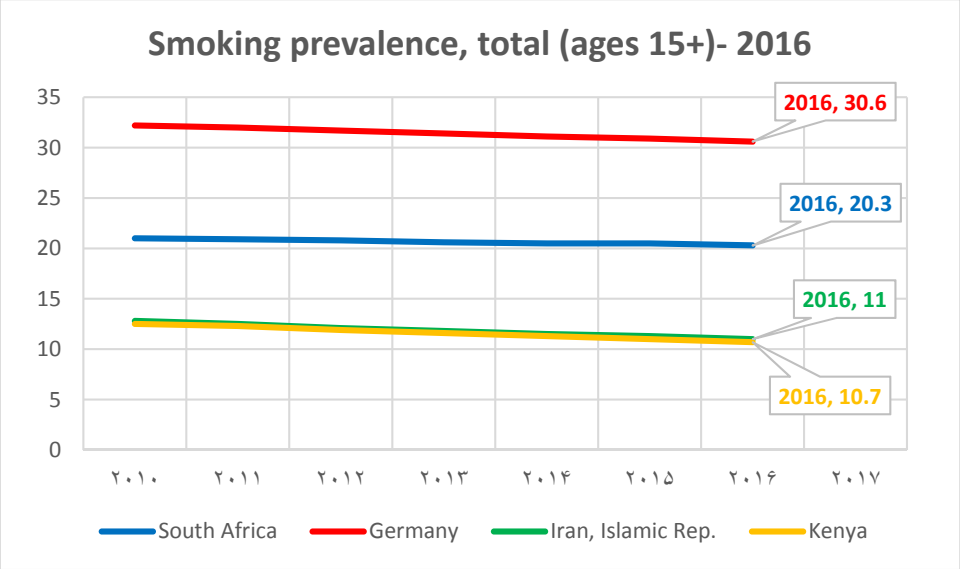

Number of infant deaths- 2017
160000
140000
120000
100000
80000
60000
40000
20000
0
2017, 33,536
2017, 51,053
2017, 16,722
South Africa
Iran, Islamic Rep.
Kenya

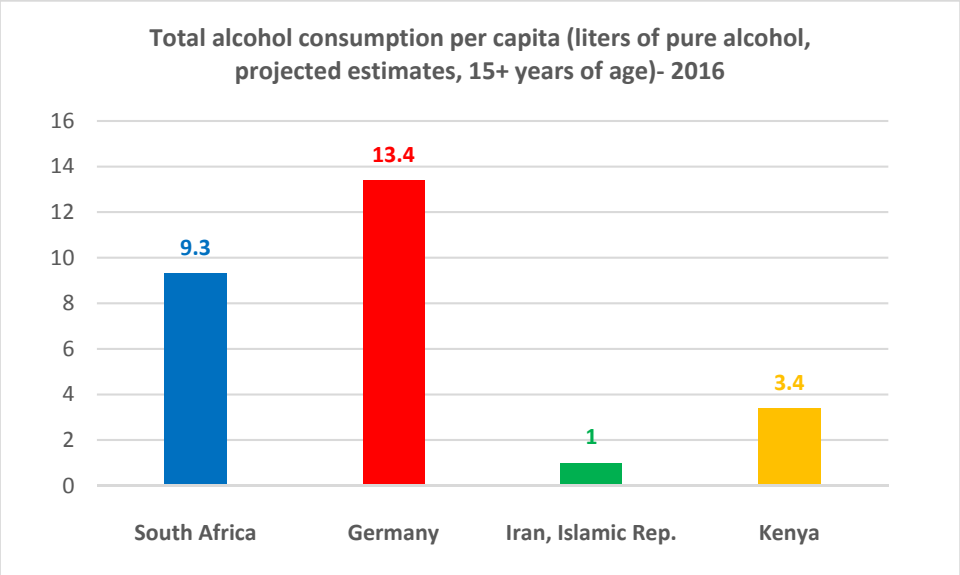

Number of under-five deaths- 2017
140000
120000
100000
80000
60000
40000
20000
0
2017, 68,882
2017, 43,254
2017, 19,562
South Africa
Iran, Islamic Rep.
Kenya

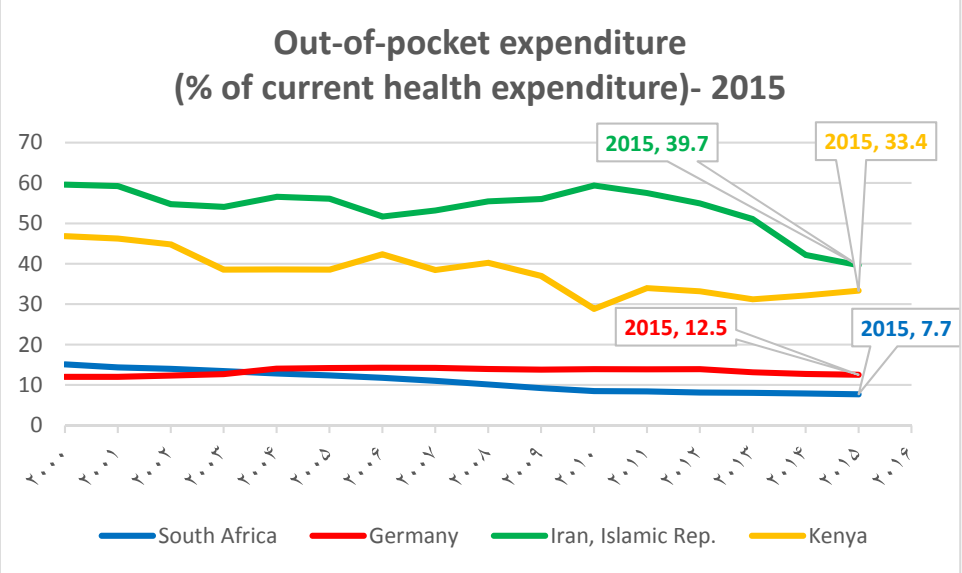

Probability of dying at age 5-14 years
(per 1,000 children age 5)- 2017
20
15
10
5
0
2017, 7.5
2017, 10.2
2017, 2.8
2017, 0.7
South Africa
Germany
Iran, Islamic Rep.
Kenya

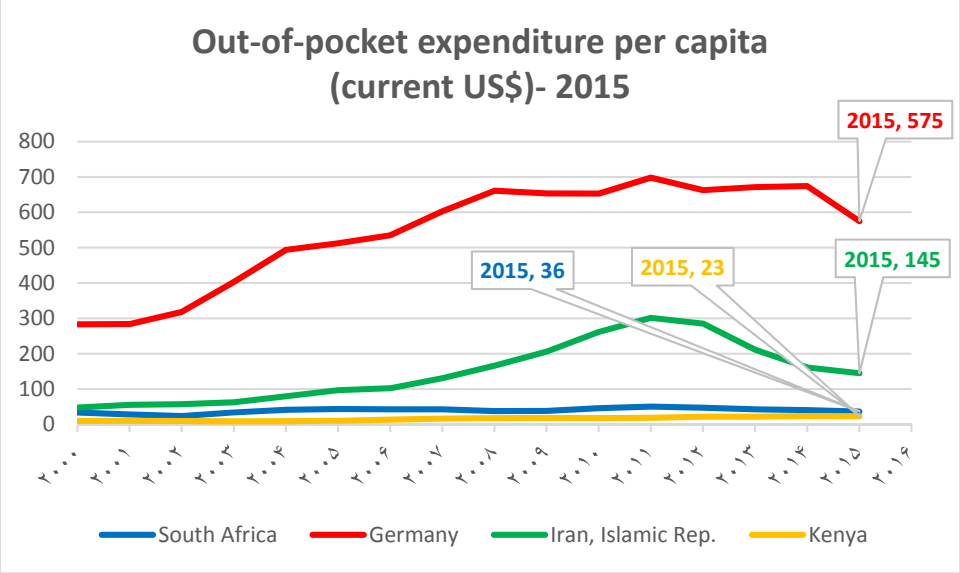

Mortality from CVD, cancer, diabetes or CRD between exact ages 30 and 70 (%)- 2016
2016, 26.2
2016, 13.4
2016, 14.8
2016, 12.1
South Africa
Germany
Iran, Islamic Rep.
Kenya

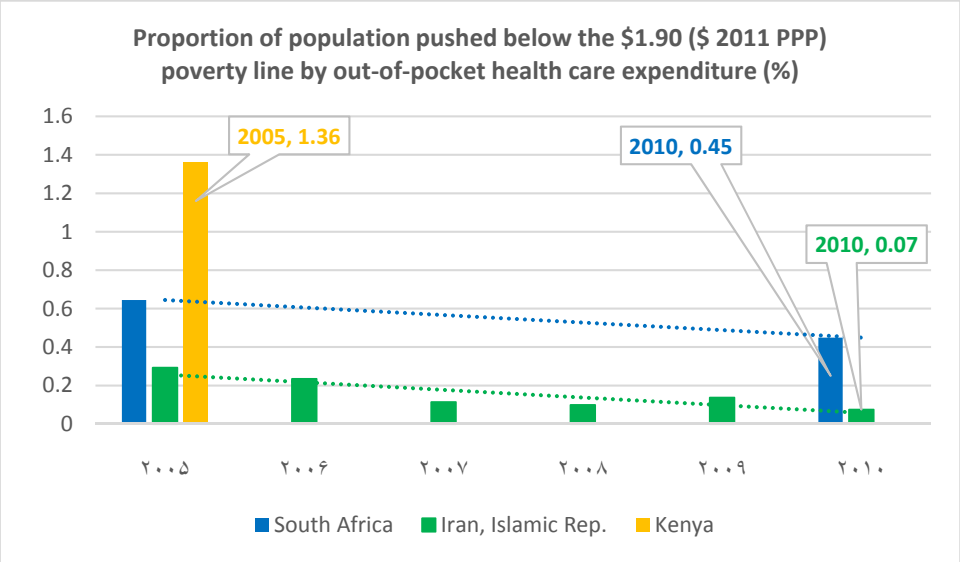

Suicide mortality rate (per 100,000 population)- 2016
2016, 13.6
2016, 11.6
2016, 4.1
2016, 3.2
South Africa
Germany
Iran, Islamic Rep.
Kenya


Smoking prevalence, total (ages 15+)- 2016
2016, 30.6
2016, 20.3
2016, 11
2016, 10.7
South Africa
Germany
Iran, Islamic Rep.
Kenya


Total alcohol consumption per capita (liters of pure alcohol, projected estimates, 15+ years of age)- 2016
16
14
12
10
8
6
4
2
0
9.3
13.4
1
3.4
South Africa
Germany
Iran, Islamic Rep.
Kenya

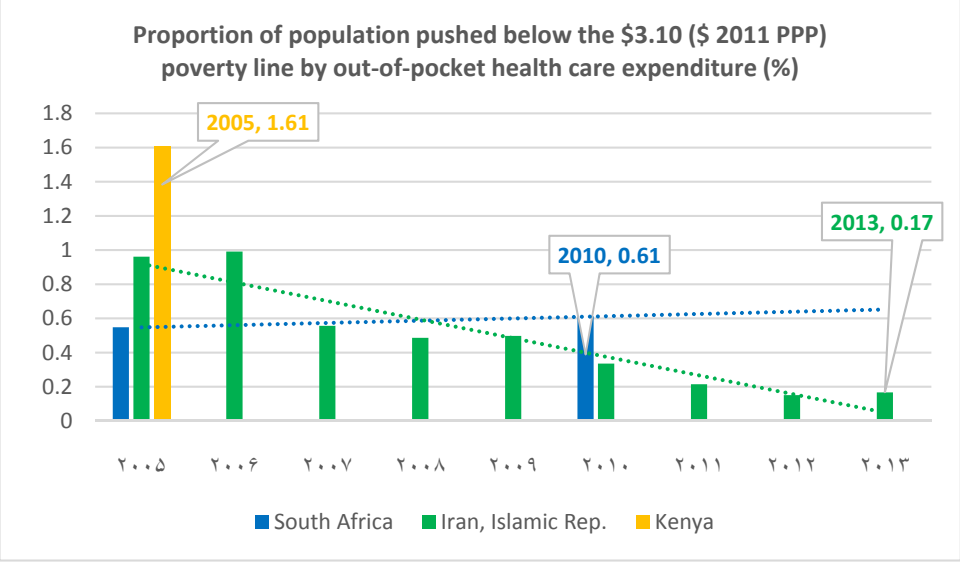

Out-of-pocket expenditure
(% of current health expenditure)- 2015
70
60
50
40
30
20
10
0
2015, 39.7
2015, 33.4
2015, 12.5
2015, 7.7
South Africa
Germany
Iran, Islamic Rep.
Kenya


Out-of-pocket expenditure per capita
(current US$)- 2015
800
700
600
500
400
300
200
100
0
2015, 575
2015, 36
2015, 23
2015, 145
South Africa
Germany
Iran, Islamic Rep.
Kenya



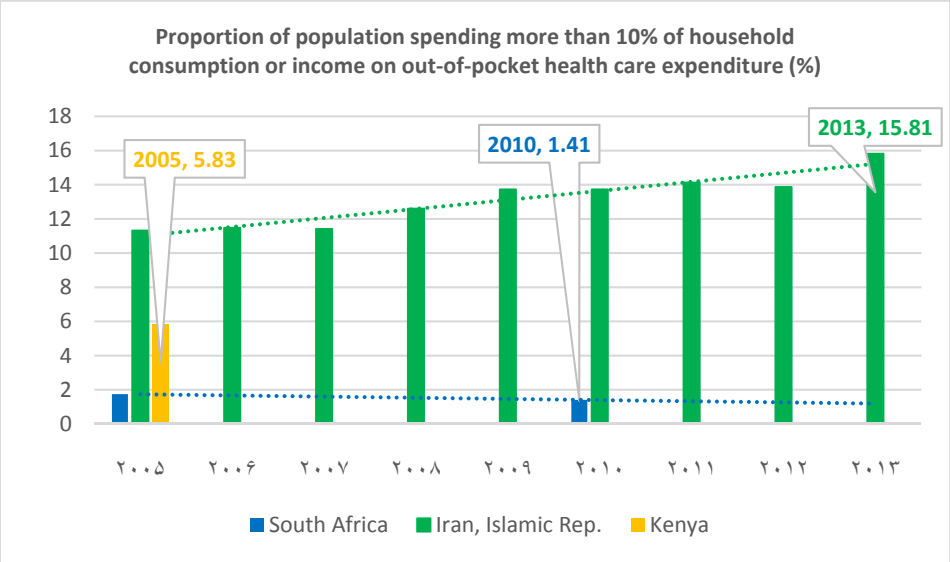
PPP/purchasing power parity conversion factor is the number of units of a country's currency required to buy the same amounts of goods and services in the domestic market as U.S. dollar would buy in the United States. This **conversion factor is** for GDP.

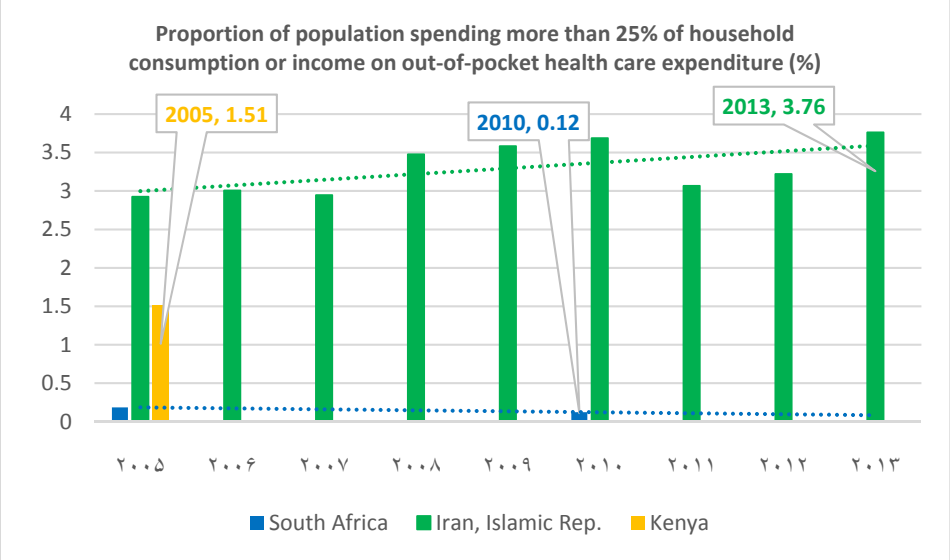
ضریب تبدیل قدرت برابری خرید (**PPP/purchasing power parity conversion factor**) عبارت است از؛ تعداد واحدهای پول یک کشورمورد نیازبرای خرید میزان مشخصی از کالا و خدمات در بازار داخلی همان کشور در مقایسه با تعداد دلار آمریکا مورد نیاز برای خرید میزان مشابه از کالا و خدمات در کشور آمریکا. از این ضریب تبدیل برای محاسبه "تولید ناخالص داخلی/GDP" هر کشور استفاده می گردد.

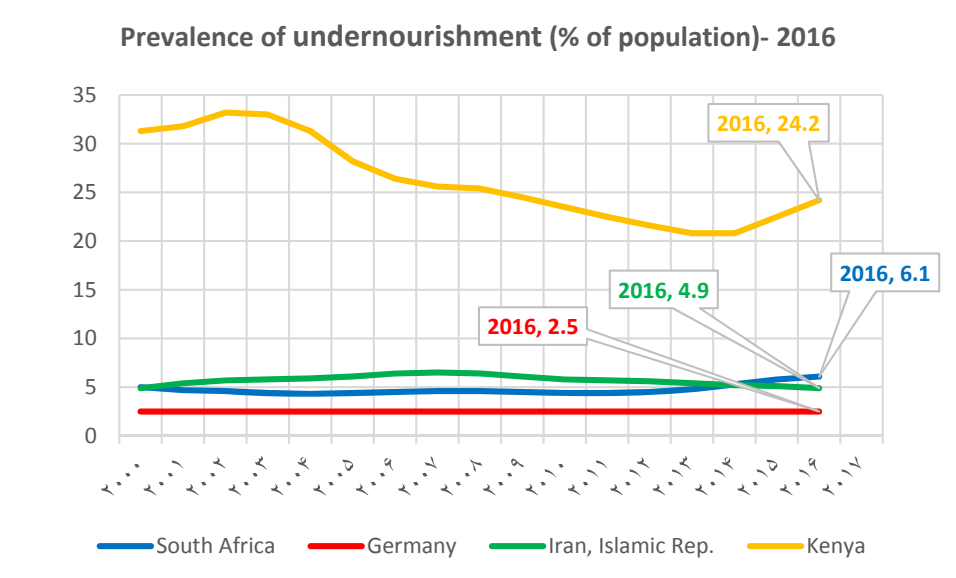


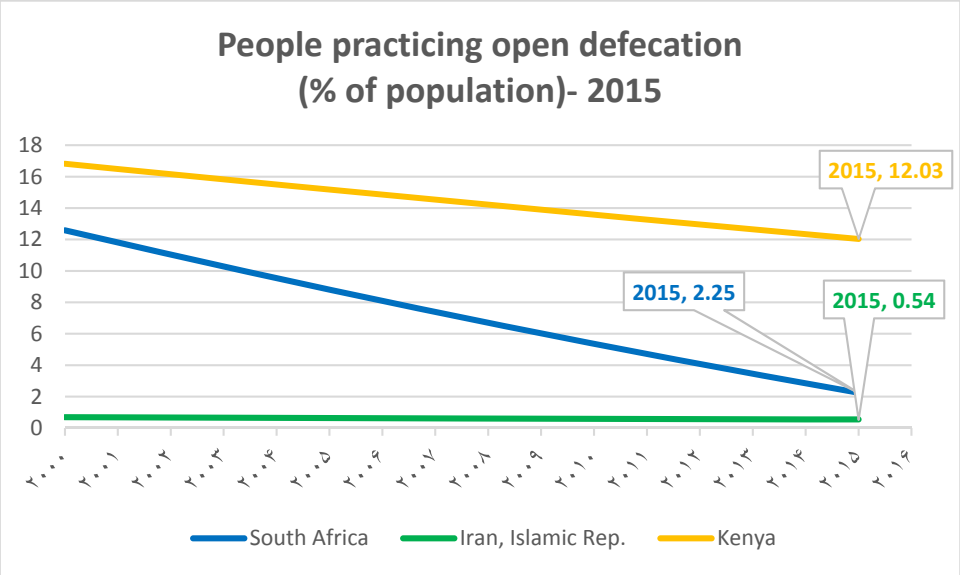
PPP/purchasing power parity conversion factor is the number of units of a country's currency required to buy the same amounts of goods and services in the domestic market as U.S. dollar would buy in the United States. This **conversion factor is** for GDP.

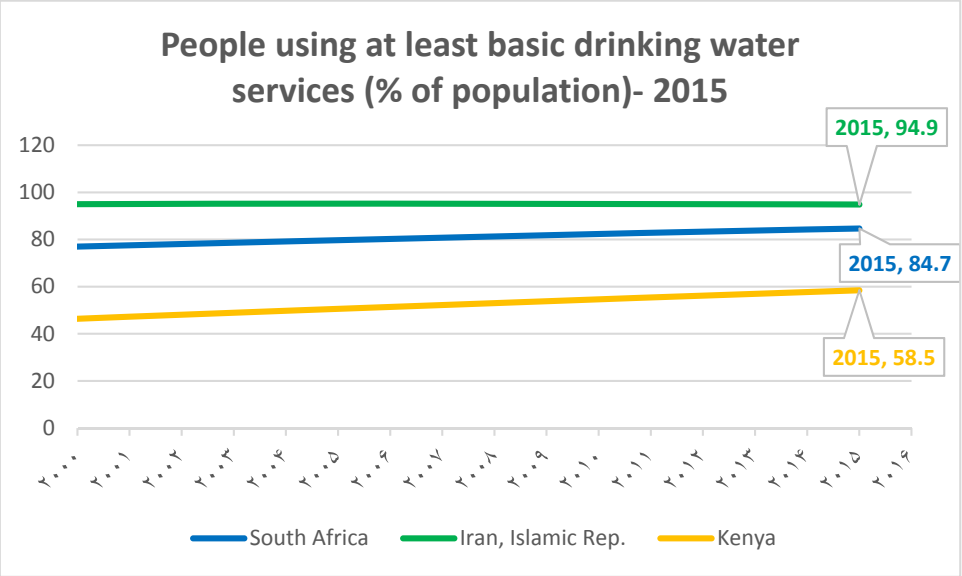
ضریب تبدیل قدرت برابری خرید (**PPP/purchasing power parity conversion factor**) عبارت است از؛ تعداد واحدهای پول یک کشورمورد نیازبرای خرید میزان مشخصی از کالا و خدمات در بازار داخلی همان کشور در مقایسه با تعداد دلار آمریکا مورد نیاز برای خرید میزان مشابه از کالا و خدمات در کشور آمریکا. از این ضریب تبدیل برای محاسبه "تولید ناخالص داخلی/GDP" هر کشور استفاده می گردد.

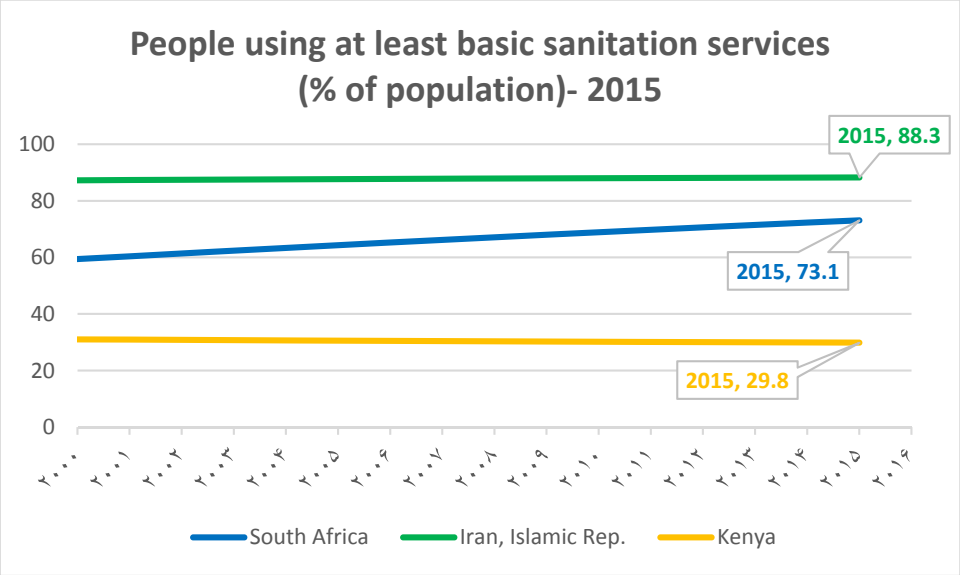

Proportion of population spending more than 10% of household consumption or income on out-of-pocket health care expenditure (%)
2005, 5.83
2010, 1.41
2013, 15.81
South Africa
Iran, Islamic Rep.
Kenya

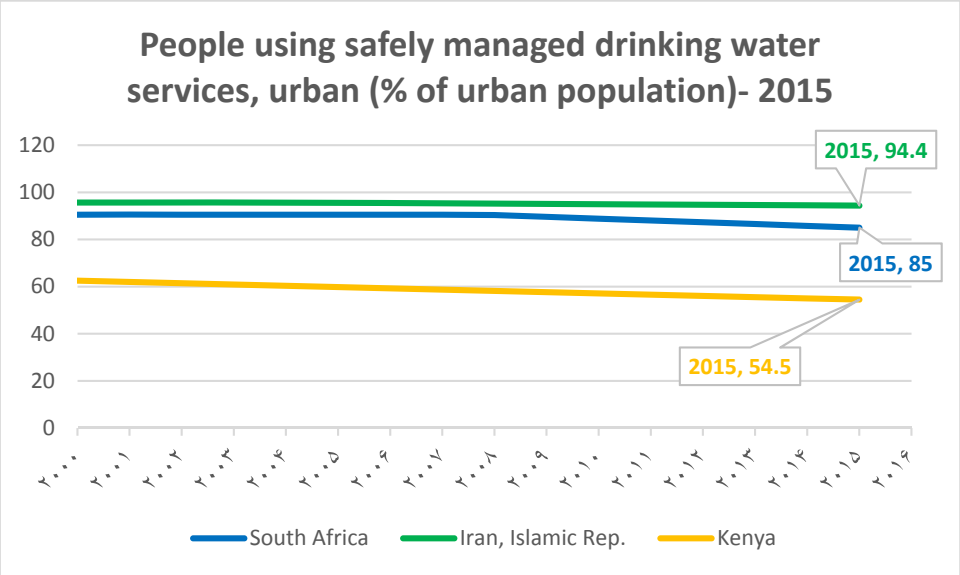

Proportion of population spending more than 25% of household consumption or income on out-of-pocket health care expenditure (%)
2005, 1.51
2010, 0.12
2013, 3.76
South Africa
Iran, Islamic Rep.
Kenya


Prevalence of undernourishment (% of population)- 2016
2016, 24.2
2016, 6.1
2016, 4.9
2016, 2.5
South Africa
Germany
Iran, Islamic Rep.
Kenya


People practicing open defecation
(% of population)- 2015
18
16
14
12
10
8
6
4
2
0
2015, 12.03
2015, 2.25
2015, 0.54
South Africa
Iran, Islamic Rep.
Kenya


People using at least basic drinking water
services (% of population)- 2015
120
100
80
60
40
20
0
2015, 94.9
2015, 84.7
2015, 58.5
South Africa
Iran, Islamic Rep.
Kenya


People using at least basic sanitation services
(% of population)- 2015
100
80
60
40
20
0
2015, 88.3
2015, 73.1
2015, 29.8
South Africa
Iran, Islamic Rep.
Kenya

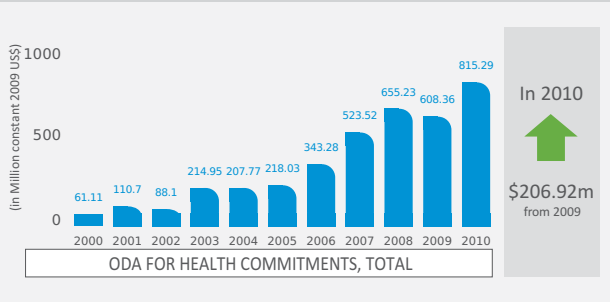

People using safely managed drinking water services, urban (% of urban population)- 2015
120
100
80
60
40
20
0
2015, 94.4
2015, 85
2015, 54.5
South Africa
Iran, Islamic Rep.
Kenya

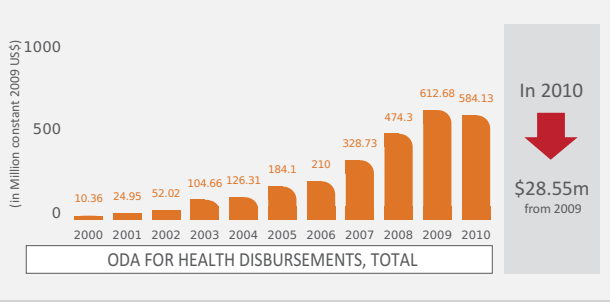
World Health Organization

OFFICIAL DEVELOPMENT ASSISTANCE (ODA) FOR HEALTH TO SOUTH AFRICA

ODA Health Disbursements from 2000 to 2010 increased by 5536% . In 2010 MDG6 accounted for 98% of all disbursements. It was 37% in year 2000.

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Population as of 30 June (Millions)	44.76	45.39	46.02	46.63	47.23	47.79	48.33	48.84	49.32	49.75	50.13
Commitments TOTAL ODA (Million constant 2009 US$)	613.67	750.40	813.29	839.81	732.45	1,104.81	981.19	1,093.85	1,307.94	1,333.50	1,218.08
Disbursements TOTAL ODA (Million constant 2009 US$)	193.72	289.89	491.99	544.36	504.16	733.48	883.53	983.51	1,104.95	1,105.68	1,080.58
ODA for Health Commitments (Million constant 2009 US$)	61.11	110.70	88.10	214.95	207.77	218.03	343.28	523.52	655.23	608.36	815.29
ODA for Health Disbursements (Million constant 2009 US$)	10.36	24.95	52.02	104.66	126.31	184.10	210.00	328.73	474.30	612.68	584.13
RATIO Health/Total ODA Commitments	0.10	0.15	0.11	0.26	0.28	0.20	0.35	0.48	0.50	0.46	0.67
RATIO Health/Total ODA Disbursements	0.05	0.09	0.11	0.19	0.25	0.25	0.24	0.33	0.43	0.55	0.54
Health Commitments per Capita (constant 2009 US$)	1.37	2.44	1.91	4.61	4.40	4.56	7.10	10.72	13.29	12.23	16.26
Health Disbursements per Capita (constant 2009 US$)	0.23	0.55	1.13	2.24	2.67	3.85	4.34	6.73	9.62	12.31	11.65
Regional Avg Health Commitments per Capita (const. 2009 US$)	3.80	3.91	3.84	5.11	5.15	6.16	7.17	9.04	10.90	11.39	10.53
Regional Avg Health Disbursements per Capita (const. 2009 US$)	1.15	2.13	2.68	3.62	4.62	5.25	5.86	6.76	8.36	9.09	9.78
Total Expenditure on Health (curr US$ p.c.)	251.30	229.28	210.54	319.52	414.71	455.62	460.77	495.22	481.78	520.63	648.71
General Government Expenditure on Health (curr US$ p.c.)	101.73	90.49	81.45	126.08	151.07	174.52	183.91	202.20	203.06	227.90	286.10
Private Expenditure on Health (curr US$ p.c.)	149.58	138.79	129.09	193.44	263.64	281.10	276.87	293.02	278.72	292.73	362.61

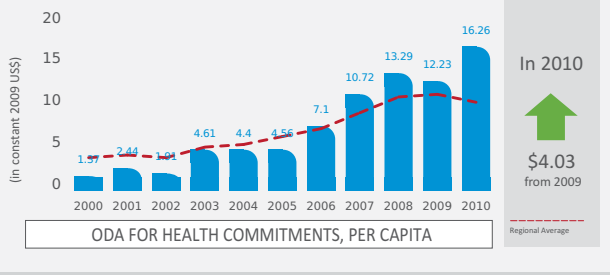


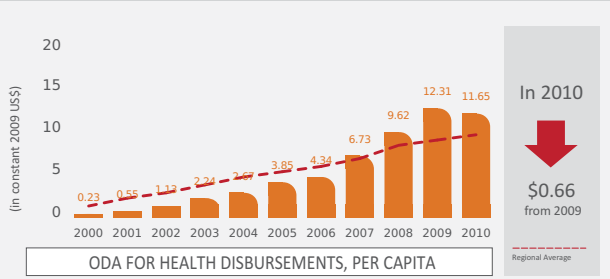


Purpose of Allocation of ODA for Health

COMMITMENTS in Million (constant 2009 US$)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Health Policy & Admin Management	9.85	7.78	5.03	16.55	3.94	5.04	3.60	6.83	18.39	16.60	3.44
MDG6 (Control of HIV/AIDs, TB, Malaria and other diseases)	29.39	31.71	25.21	180.25	179.51	178.60	256.90	508.00	633.59	585.62	630.65
Other Health Purposes	12.25	69.54	56.00	17.08	23.33	33.04	81.92	5.74	1.81	4.16	179.21
Reproductive Health & Family Planning	9.62	1.67	1.86	1.07	1.00	1.35	0.86	2.95	1.44	1.99	1.98
Grand Total	61.11	110.70	88.10	214.95	207.77	218.03	343.28	523.52	655.23	608.36	815.29

DISBURSEMENTS in Million (constant 2009 US$)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Health Policy & Admin Management	2.86	5.76	4.70	7.05	4.36	6.17	4.99	3.34	13.21	4.96	5.80
MDG6 (Control of HIV/AIDs, TB, Malaria and other diseases)	3.81	12.91	12.80	63.20	98.78	149.14	162.29	289.44	434.77	572.58	572.10
Other Health Purposes	2.58	3.34	31.16	31.05	20.14	27.36	41.72	35.65	25.46	32.31	5.17
Reproductive Health & Family Planning	1.11	2.94	3.36	3.35	3.02	1.43	1.00	0.30	0.86	2.84	1.07
Grand Total	10.36	24.95	52.02	104.66	126.31	184.10	210.00	328.73	474.30	612.68	584.13





World Health Organization

OFFICIAL DEVELOPMENT ASSISTANCE (ODA) FOR HEALTH TO SOUTH AFRICA

In the period 2009-2010 the total amount of US$ Million 1,196.82 was disbursed from donors for implementation in 1,229 different transfers

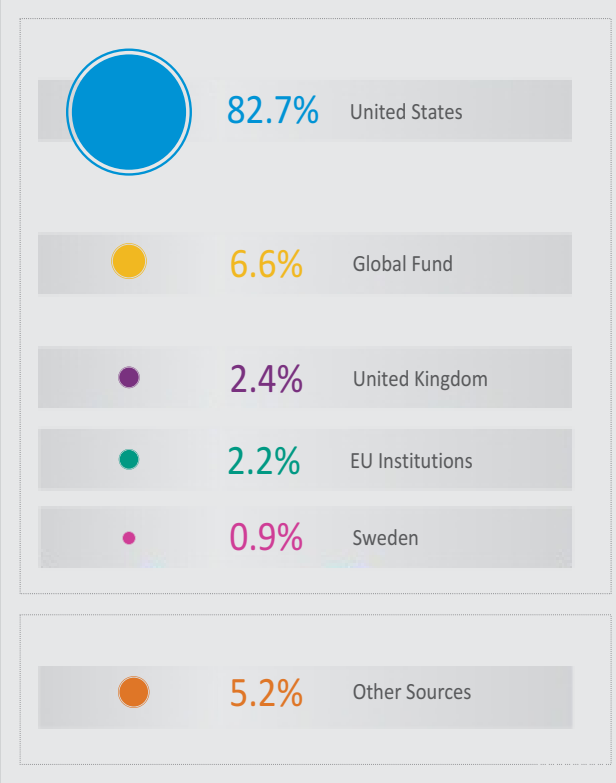
HOW MUCH DONORS DISBURSED IN 2009-2010

Bilateral	Number of Disbursements	in Million constant 2009 US$ Total
Australia	18	0.13
Austria	7	0.17
Belgium	23	5.92
Canada	94	7.78
Denmark	7	5.11
Finland	3	0.42
France	9	3.43
Germany	59	7.30
Greece	-	-
Ireland	53	8.22
Italy	7	1.77
Japan	20	2.98
Korea	1	0.02
Kuwait	-	-
Luxembourg	3	0.57
Netherlands	10	7.20
New Zealand	-	-
Norway	16	1.28
Portugal	-	-
Spain	3	0.16
Sweden	50	11.01
Switzerland	2	0.07
United Arab Emirates	-	-
United Kingdom	10	28.81
United States of America	724	989.63
TOTAL	1119	1,081.97

Multilateral	Number of Disbursements	in Million constant 2009 US$ Total
AfDF	-	-
AFESD	-	-
AsDB Special Fund	-	-
EU Institutions	26	26.19
GAVI	-	-
Global Fund	9	79.19
IDA	-	-
IDB Special Fund	-	-
OFID	-	-
UNAIDS	2	2.15
UNDP	8	0.30
UNFPA	44	4.42
UNICEF	21	2.60
UNPBF	-	-
UNRWA	-	-
WFP	-	-
TOTAL	110	114.85

ACRONYMS: AFRO - WHO African Region; AMRO - WHO Region of the Americas; EMRO - WHO Eastern Mediterranean Region; EURO - WHO European Region; MDGs - Millennium Development Goals; SEARO - WHO South-East Asia Region; WPRO-WHO Western Pacific Region; AfDF - African Development Fund; AFESD - Arab Fund for Economic and Social Development; AsDB Special Funds - Asian Development Bank; EU Institutions -European Commission, European Community; GAVI - Global Alliance for Vaccines and Immunization; Global Fund - Global Fund to Fight AIDS, Tuberculosis and Malaria; IDA-International Development Association (World Bank); IDB Sp.Fund - Inter American Development Bank, Special Fund; OFID - OPEC Fund for International Development; UN - United Nations; UNAIDS - Joint United Nations Programme on HIV/AIDS; UNDP - United Nations Development Programme; UNFPA - United Nations Population Fund; UNICEF - United Nations Children's Fund; UNPBF - United Nations Peace building Fund; UNRWA - United Nations Relief and Works Agency; WFP - World Food Programme.

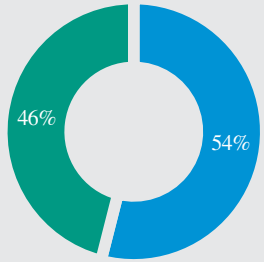
5 LARGEST SOURCES OF DISBURSEMENTS FOR HEALTH IN 2009-2010



7 largest SINGLE disbursements in 2009-2010

in Million constant US$

$181.54m	2010	UNITED STATES	STD CONTROL INCLUDING HIV/AIDS
$137.91m	2009	UNITED STATES	STD CONTROL INCLUDING HIV/AIDS
$63.95m	2010	UNITED STATES	STD CONTROL INCLUDING HIV/AIDS
$54.96m	2009	UNITED STATES	STD CONTROL INCLUDING HIV/AIDS
$43.18m	2009	UNITED STATES	STD CONTROL INCLUDING HIV/AIDS
$37.03m	2009	UNITED STATES	STD CONTROL INCLUDING HIV/AIDS
$36.93m	2009	UNITED STATES	STD CONTROL INCLUDING HIV/AIDS



7
Largest Disbursements in 2009-2010

1222
Other Disbursements in 2009-2010

SOURCE: This information was extracted on 13/02/2012 from the Creditor Reporting System (CRS) database maintained by the Organization for Economic Co-operation and Development (OECD), Statistics Department (http://stats.oecd.org/Index.aspx).

DEFINITIONS: CRS financial data presented here are commitments and disbursements. A commitment is a firm written obligation by a government official agency, backed by the appropriation or availability of the necessary funds, to provide resources of a specified amount under specified financial terms and conditions and for specified development purposes. A disbursement is the release of funds to, or the purchase of goods or services for, a recipient; by extension, the amount thus spent. Disbursements record the actual international transfer of financial resources, or of goods or services valued at the cost to the donor. It can take several years to disburse a commitment. Yearly commitments and disbursements are presented in constant 2009 US$ to ensure comparability over years. ODA for health volumes are also presented in US$ per capita per year and according to allocation (i.e. policy purpose). Policy purposes used here are based on the original CRS statistical purpose codes, but have been aggregated to reflect, as far as possible, global health development benchmarks (i.e. MDG6; Reproductive Health & Family Planning).

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DEVELOPMENT AID AT A GLANCE

STATISTICS BY REGION

2. AFRICA

2018 edition

All the data in this report are available at:

http://www.oecd.org/dac/financing-sustainable-development/

2.1. ODA TO AFRICA - SUMMARY

2.1.1. Top 10 ODA receipts by recipient
USD million, net disbursements in 2016

1	Ethiopia	4 074	8%
2	Nigeria	2 501	5%
3	Tanzania	2 318	5%
4	Kenya	2 189	4%
5	Egypt	2 130	4%
6	Democratic Republic of the Congo	2 107	4%
7	Morocco	1 992	4%
8	Uganda	1 757	4%
9	South Sudan	1 590	3%
10	Mozambique	1 531	3%
	Other recipients	27 764	56%
	Total	**49 954**	**100%**

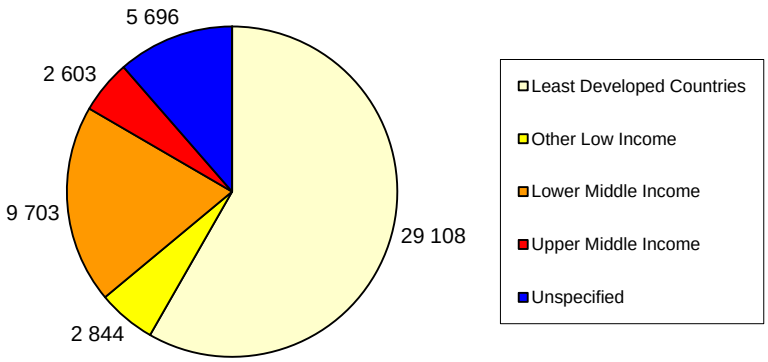
2.1.2. Top 10 ODA donors
USD million, net disbursements in 2016

1	United States	9 861	20%
2	EU Institutions	6 328	13%
3	IDA	5 844	12%
4	United Kingdom	3 857	8%
5	Germany	3 499	7%
6	Global Fund	2 622	5%
7	United Arab Emirates	2 453	5%
8	France	2 217	4%
9	African Dev.Bank	2 190	4%
10	Japan	1 495	3%
	Other donors	9 589	19%
	Total	**49 954**	**100%**

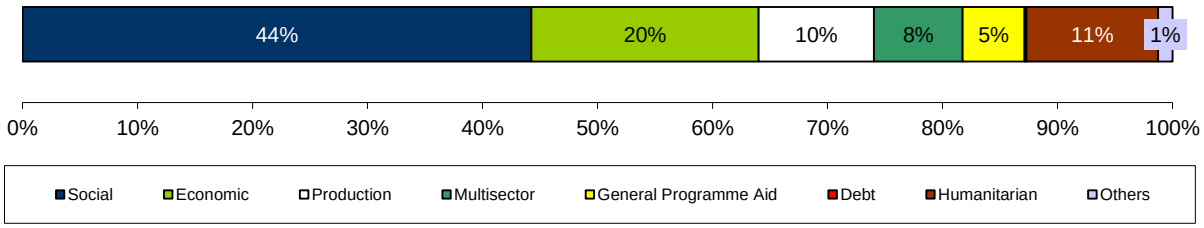
2.1.3. Trends in ODA

	2015	2016	% change
ODA net disbursements (2015 USD million)	51 044	50 211	-1.6%
ODA gross disbursements (2015 USD million)	57 067	56 328	-1.3%
ODA commitments (2015 USD million)	65 813	60 359	-8.3%
Population (thousands)	1192 575	1223 324	2.6%
Net ODA per capita (USD)	42.8	40.8	—

2.1.4. ODA by income group
USD million, 2016, net disbursements

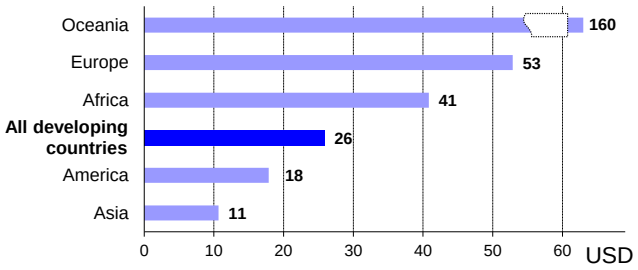


2.1.5. Sectors in 2016
commitments



2.1.6. Net ODA receipts per capita in 2016

in USD

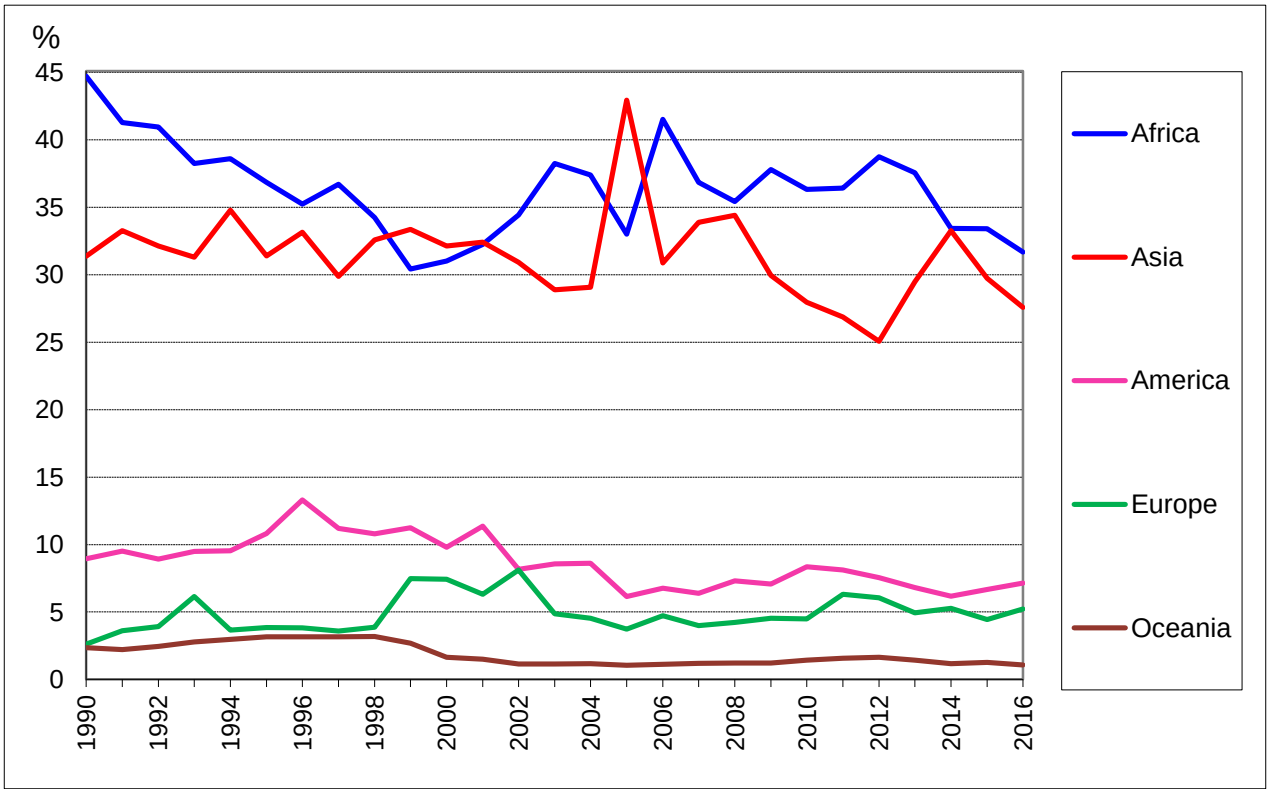


2.1.7. Net ODA and population of aid recipient countries by region in 2016

	Net ODA USD million	Population million
Africa	49 954	1 223
Asia	43 516	4 077
America	11 284	632
Europe	8 222	156
Oceania	1 680	11
Aid unspecified by region	43 049	---
All ODA recipients	**157 704**	6 098

2.1.8. Regional shares of total net ODA

As a percentage of total ODA



2.2. ODA TO AFRICA BY DONOR AND RECIPIENT

2.2.1. Top 10 DAC donor countries to Africa

USD million, net bilateral disbursements

a) Top 10 bilateral donors by amount

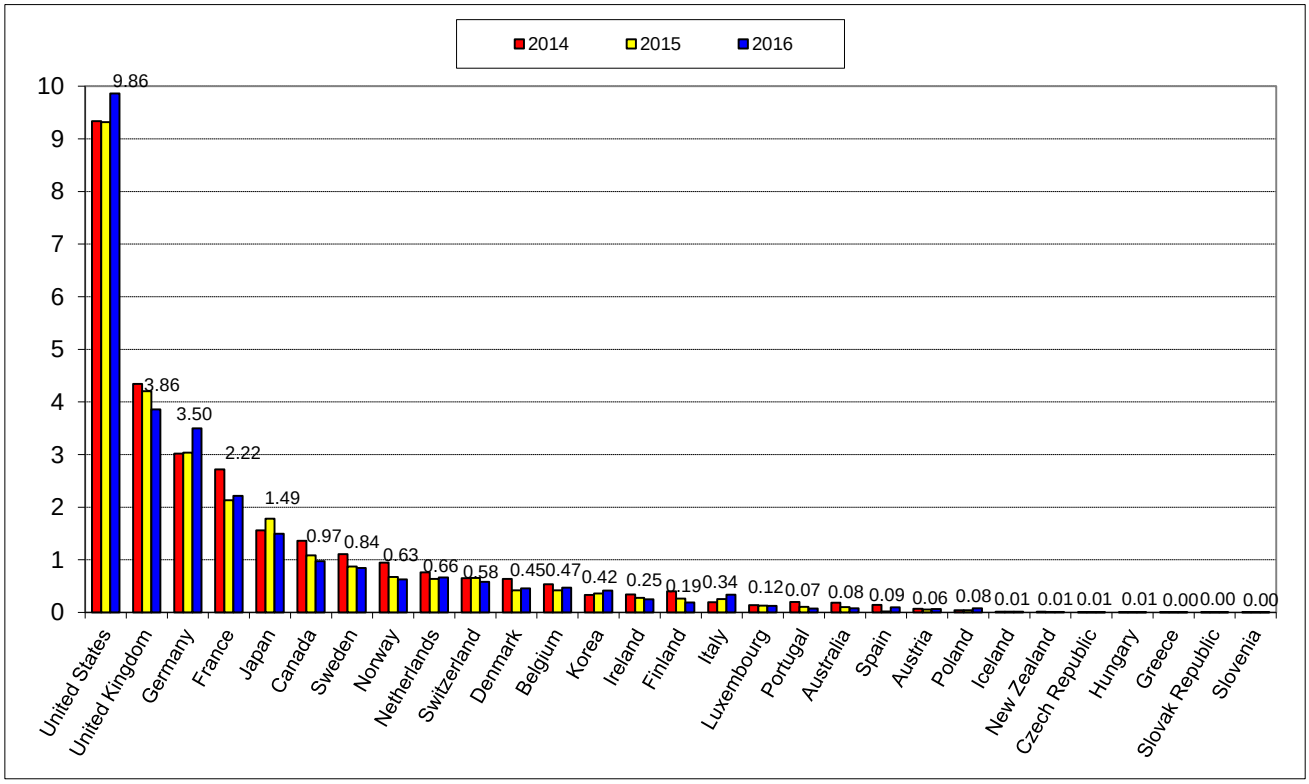
		2014	2015	2016	**3-year average**	% of DAC countries
1	United States	9 338	9 320	9 861	**9 506**	34%
2	United Kingdom	4 341	4 203	3 857	**4 134**	15%
3	Germany	3 016	3 036	3 499	**3 184**	11%
4	France	2 717	2 131	2 217	**2 355**	8%
5	Japan	1 558	1 784	1 495	**1 612**	6%
6	Canada	1 362	1 086	974	**1 141**	4%
7	Sweden	1 109	873	843	**942**	3%
8	Norway	946	672	629	**749**	3%
9	Netherlands	761	635	663	**686**	2%
10	Switzerland	651	655	584	**630**	2%
	Other DAC countries	3 253	2 483	2 669	**2 802**	10%
	Total DAC countries	**29 050**	**26 877**	**27 289**	**27 739**	**100%**

b) Top 10 bilateral donors by share of aid to Africa

		2014	2015	2016	**3-year average**	Africa as % of each donor's aid 2014-2016
1	Ireland	341	277	251	**289**	81%
2	Portugal	197	105	72	**125**	79%
3	Iceland	15	13	15	**14**	73%
4	Belgium	534	421	471	**476**	69%
5	Netherlands	761	635	663	**686**	61%
6	Luxembourg	139	128	123	**130**	57%
7	Denmark	636	418	455	**503**	57%
8	Poland	41	43	80	**55**	55%
9	United Kingdom	4 341	4 203	3 857	**4 134**	54%
10	Finland	400	262	188	**284**	53%
	Other DAC countries	21 646	20 371	21 114	**21 044**	32%
	Total DAC countries	**29 050**	**26 877**	**27 289**	**27 739**	**44%**

2.2.2. DAC donor countries' aid to Africa

USD billion, values shown for 2016, net bilateral disbursements



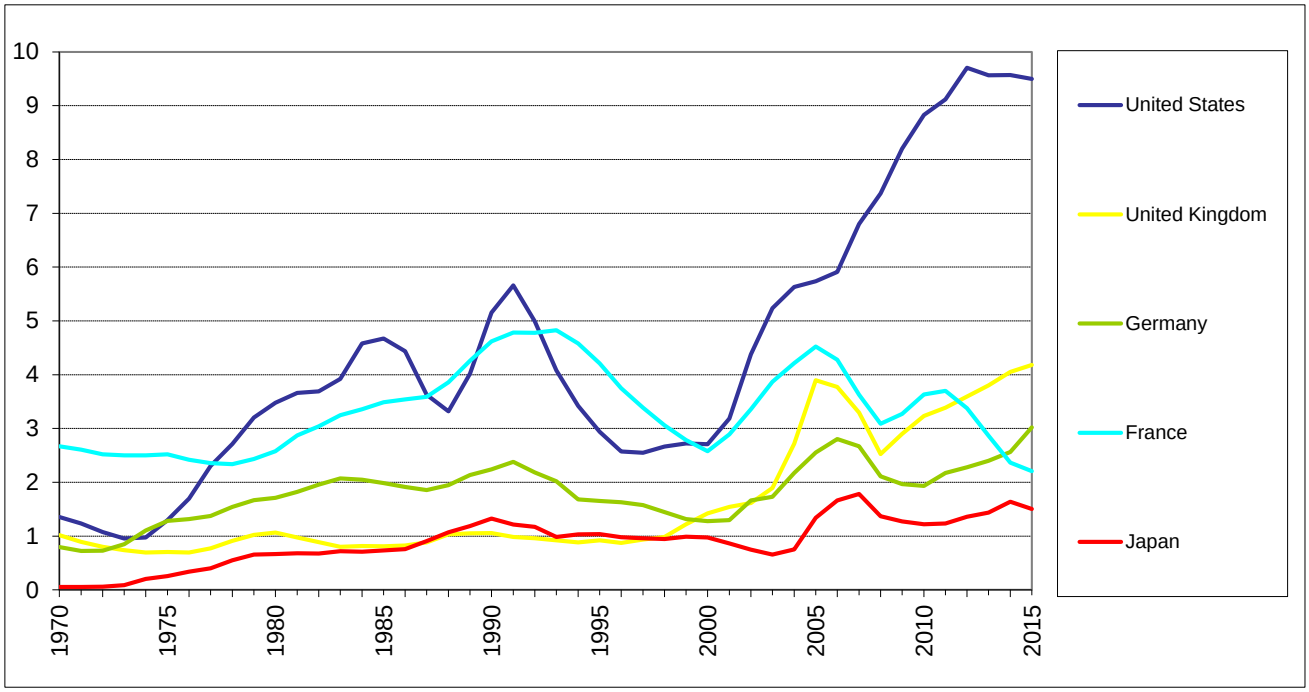
2.2.3. ODA to Africa by DAC donor

USD million, 2015 prices and exchange rates, average annual net bilateral disbursements

	1970-79	1980-89	1990-99	2000-09	2010-16	2010-16 % of DAC countries	2010-16 Africa as % of each donor's aid
Australia	24	111	108	78	188	1%	9%
Austria	60	198	28	235	106	0%	31%
Belgium	556	540	330	643	614	2%	77%
Canada	521	707	606	873	1 223	4%	47%
Czech Republic	-	-	0	5	7	0%	14%
Denmark	205	405	554	696	614	2%	61%
Finland	43	187	165	177	277	1%	54%
France	2 475	3 370	4 097	3 562	2 915	11%	58%
Germany	1 143	1 929	1 824	2 024	2 525	9%	34%
Greece	-	-	2	17	8	0%	17%
Hungary	7	2	1	3	2	0%	8%
Iceland	-	-	2	8	13	0%	74%
Ireland	3	25	77	311	310	1%	82%
Italy	153	1 377	964	618	283	1%	55%
Japan	267	815	1 062	1 134	1 423	5%	33%
Korea	-	0	15	50	281	1%	26%
Luxembourg	-	-	37	104	114	0%	55%
Netherlands	312	844	842	1 237	756	3%	64%
New Zealand	2	2	5	15	9	0%	3%
Norway	199	541	718	754	724	3%	44%
Poland	13	1	0	13	30	0%	31%
Portugal	-	17	247	222	209	1%	85%
Slovak Republic	-	-	-	9	2	0%	24%
Slovenia	-	-	-	0	1	0%	5%
Spain	-	23	309	515	356	1%	33%
Sweden	341	641	622	767	927	3%	55%
Switzerland	94	328	370	376	546	2%	38%
United Kingdom	823	923	945	2 566	3 802	14%	56%
United States	1 649	3 878	3 760	5 529	9 398	34%	47%
Total DAC countries	**8 891**	**16 865**	**17 690**	**22 538**	**27 662**	**100%**	**45%**
EU Institutions	1 271	2 129	2 906	3 798	4 600	---	42%

2.2.4. ODA to Africa by largest bilateral donors since 1970

USD billion, 2015 prices and exchange rates, 3-year average net bilateral disbursements



2.2.5. Top 10 multilateral donors to Africa

USD million, net disbursements

		2014	2015	2016	**3-year average**	% of all multilaterals
1	International Development Association	6 386	6 246	5 844	**6 159**	31%
2	EU Institutions	6 737	5 176	6 328	**6 080**	30%
3	Global Fund	1 957	2 211	2 622	**2 264**	11%
4	African Development Fund	1 904	2 059	2 029	**1 997**	10%
5	Global Alliance for Vaccines and Immunization	844	1 016	755	**871**	4%
6	UNICEF	525	540	549	**538**	3%
7	Global Environment Facility	234	218	257	**236**	1%
8	UNDP	239	235	221	**232**	1%
9	IFAD	209	182	239	**210**	1%
10	IMF (Concessional Trust Funds)	243	361	23	**209**	1%
	Other multilaterals	1 394	1 535	1 185	**1 371**	7%
	Total multilaterals	**20 673**	**19 778**	**20 052**	**20 168**	**100%**

2.2.6. Top 10 ODA recipients in Africa

USD million, receipts from all donors, net ODA receipts

		2014	2015	2016	**3-year average**	% of all recipients
1	Ethiopia	3 584	3 234	4 074	**3 630**	7%
2	Egypt	3 538	2 499	2 130	**2 722**	5%
3	Tanzania	2 651	2 582	2 318	**2 517**	5%
4	Nigeria	2 479	2 432	2 501	**2 470**	5%
5	Kenya	2 661	2 464	2 189	**2 438**	5%
6	Democratic Republic of the Congo	2 400	2 599	2 107	**2 369**	5%
7	Morocco	2 240	1 481	1 992	**1 905**	4%
8	Mozambique	2 106	1 815	1 531	**1 817**	4%
9	South Sudan	1 964	1 675	1 590	**1 743**	3%
10	Uganda	1 634	1 628	1 757	**1 673**	3%
	Other recipients	28 827	28 635	27 764	**28 409**	55%
	Total ODA recipients	**54 083**	**51 044**	**49 954**	**51 694**	**100%**

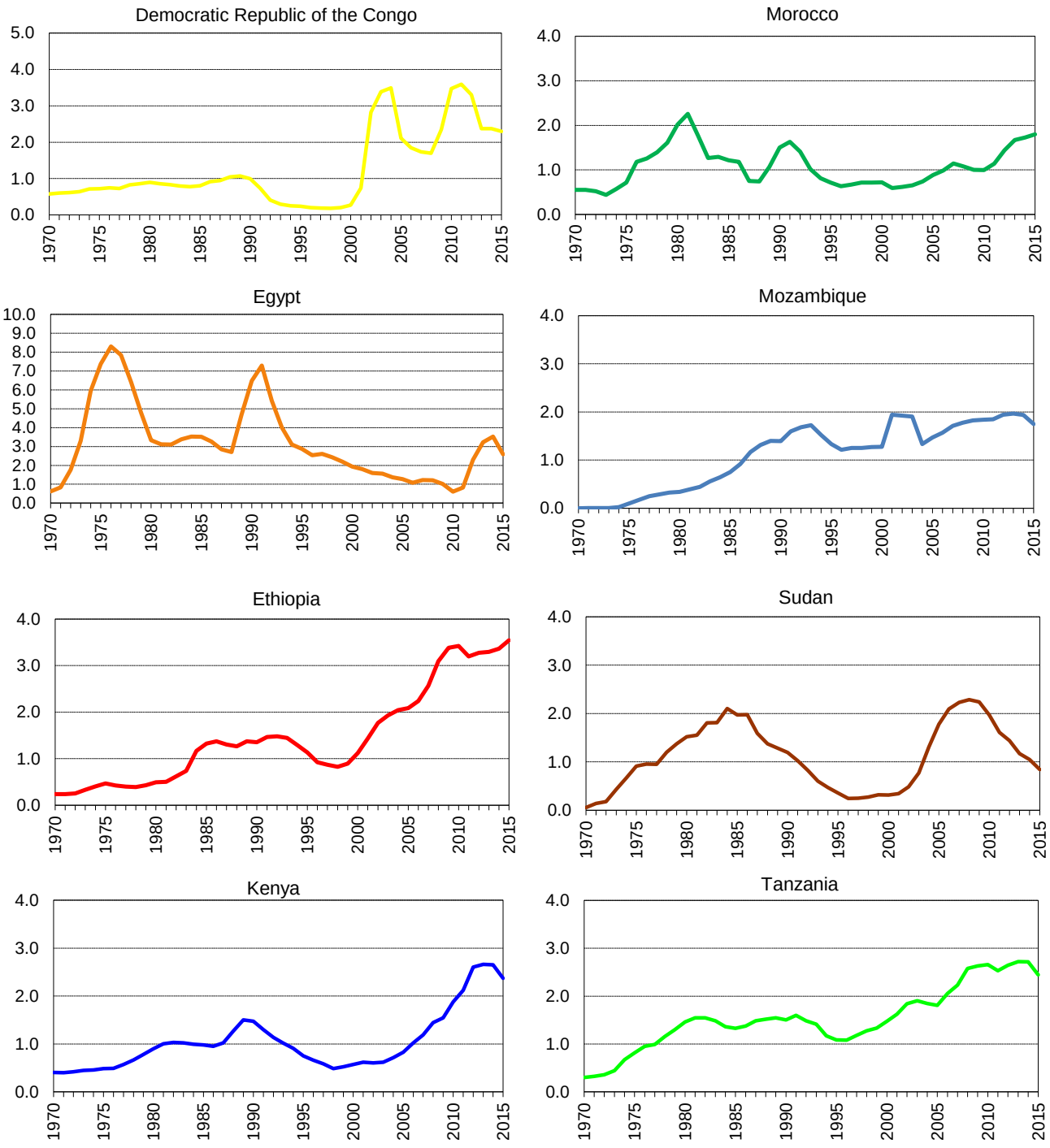
2.2.7. ODA to Africa by recipient country

USD million, 2015 prices and exchange rates, net ODA receipts

	2010-16	1970-79	1980-89	1990-99	2000-09	2010-16	2014	2015	2016
	Share(%)	Annual averages					Annual amounts		
Algeria	0.3	532	341	371	294	148	139	87	157
Angola	0.5	44	204	472	466	241	213	380	207
Benin	1.1	149	235	324	424	535	531	430	492
Botswana	0.2	161	239	140	142	99	94	66	89
Burkina Faso	2.0	289	461	532	720	972	1 010	997	1 023
Burundi	1.1	150	319	252	355	514	455	367	737
Cabo Verde	0.4	35	144	154	154	200	200	153	112
Cameroon	1.3	394	461	666	893	626	755	663	753
Central African Republic	0.7	133	261	195	131	339	538	487	501
Chad	1.0	220	279	302	344	473	348	607	625
Comoros	0.1	60	91	52	34	65	65	66	55
Congo	0.6	156	196	249	290	275	92	89	87
Côte d'Ivoire	2.3	312	404	1 047	593	1 130	833	653	656
Democratic Republic of the Congo	5.9	705	890	371	2 015	2 858	2 175	2 599	2 125
Djibouti	0.3	104	169	139	100	142	146	170	185
Egypt	4.5	4 771	3 116	4 110	1 409	2 170	3 138	2 499	2 127
Equatorial Guinea	0.0	9	48	52	28	18	0	7	7
Eritrea	0.2	5	6	129	260	99	75	94	67
Ethiopia	7.0	357	1 006	1 172	2 180	3 401	3 270	3 234	4 124
Gabon	0.2	127	150	129	41	74	95	99	41
Gambia	0.2	46	140	85	80	106	90	108	93
Ghana	3.0	291	566	782	1 150	1 453	1 013	1 769	1 324
Guinea	0.9	75	306	447	267	422	499	538	559
Guinea-Bissau	0.2	56	151	155	107	111	97	95	198
Kenya	4.9	512	1 070	877	932	2 360	2 451	2 464	2 196
Lesotho	0.4	102	210	140	94	193	100	83	113
Liberia	1.6	86	194	146	385	795	681	1 094	810
Libya	0.4	29	38	6	19	190	189	157	182
Madagascar	1.0	260	500	531	721	491	522	677	621
Malawi	2.0	237	396	605	651	990	842	1 049	1 258
Mali	2.3	325	661	554	715	1 115	1 088	1 204	1 210
Mauritania	0.6	331	409	292	319	305	230	318	290
Mauritius	0.2	75	94	53	45	101	36	78	42
Mayotte	0.2	9	48	117	265	75	-	-	-
Morocco	3.1	838	1 369	1 022	833	1 511	1 936	1 481	1 976
Mozambique	3.8	116	788	1 420	1 681	1 841	1 899	1 815	1 532
Namibia	0.5	0	20	212	194	220	217	142	169
Niger	1.6	347	512	403	484	770	811	868	951
Nigeria	4.5	301	135	282	2 444	2 162	2 283	2 432	2 550
Rwanda	2.1	232	384	547	604	1 016	937	1 085	1 157
Saint Helena	0.2	15	35	22	30	110	122	82	118
Sao Tome and Principe	0.1	7	30	63	40	47	36	49	47
Senegal	1.8	421	871	741	773	891	999	879	735
Seychelles	0.0	47	42	26	21	21	11	7	6
Sierra Leone	1.2	66	158	188	408	587	828	946	715
Somalia	2.0	413	896	469	343	959	992	1 253	1 194
South Africa	2.4	-	-	385	788	1 165	1 003	1 420	1 173
South Sudan	2.3	-	-	-	-	1 123	1 818	1 675	1 607
Sudan	2.6	691	1 691	556	1 397	1 255	803	900	816
Swaziland	0.2	67	70	59	39	102	81	93	147
Tanzania	5.3	731	1 462	1 315	2 006	2 581	2 419	2 582	2 331
Togo	0.5	158	245	195	140	256	185	200	165
Tunisia	1.4	637	466	292	354	670	792	475	625
Uganda	3.2	131	437	908	1 374	1 576	1 497	1 628	1 766
Zambia	1.9	286	669	1 023	1 104	919	919	797	964
Zimbabwe	1.5	16	485	551	361	740	697	788	667
North of Sahara, regional	0.6	17	27	49	146	268	218	305	279
South of Sahara, regional	5.2	539	747	752	1 618	2 529	3 047	2 435	2 658
Africa, regional	4.4	228	666	753	918	2 116	2 177	3 325	2 800
Africa total	**100**	**17 450**	**26 009**	**27 881**	**34 725**	**48 522**	**48 739**	**51 044**	**50 211**

2.2.8. Trends in aid to largest African recipients since 1970

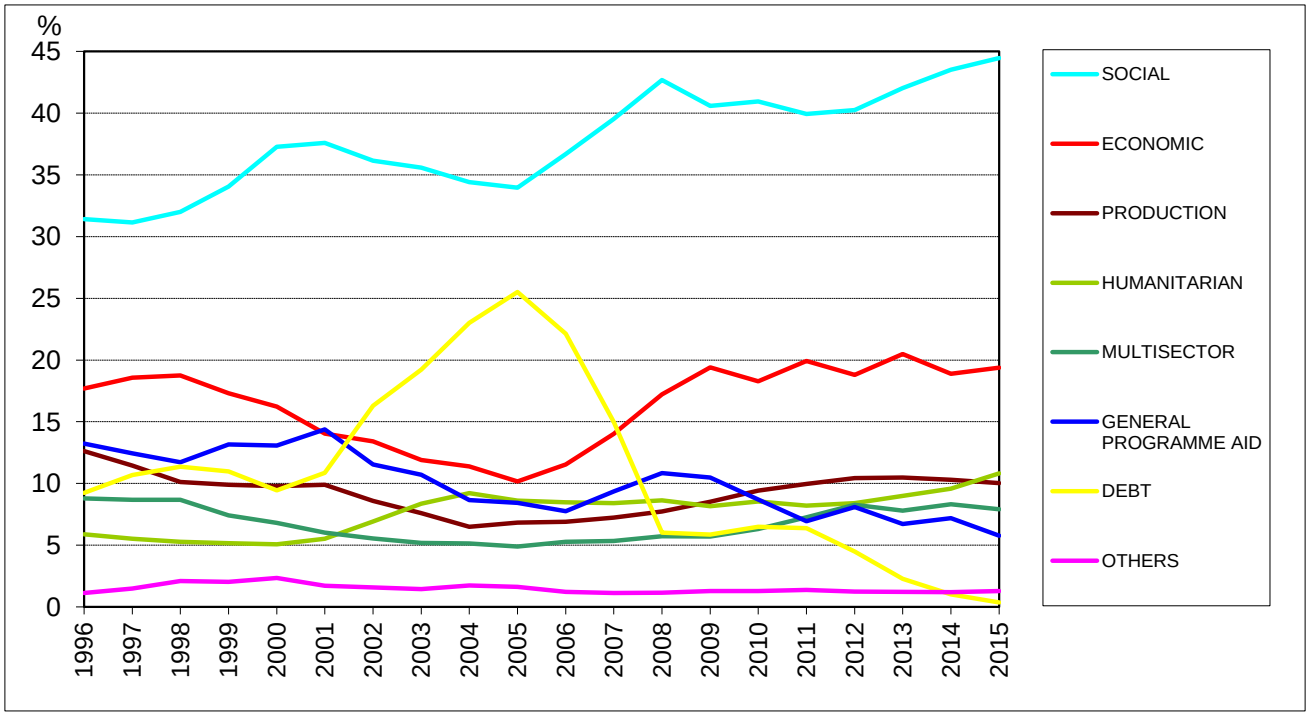
USD billion, 2015 prices and exchange rates, 3-year average net ODA receipts



2.3. ODA TO AFRICA BY SECTOR

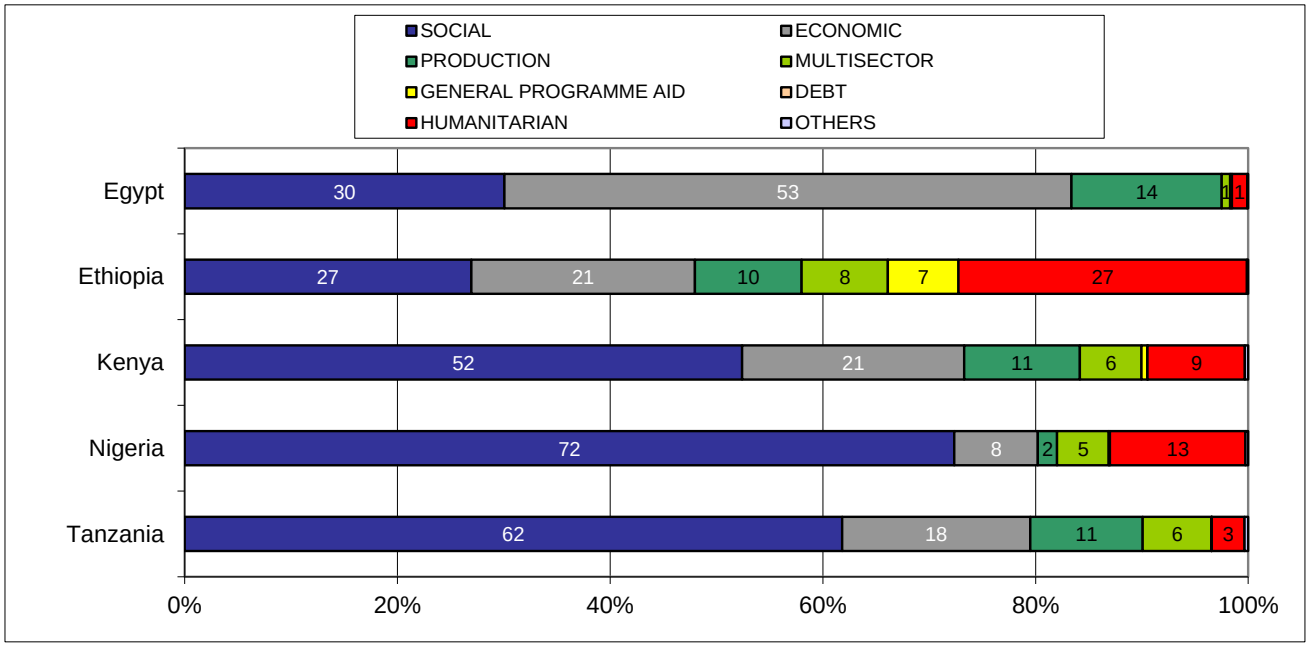
2.3.1. ODA to Africa by sector since 1996

As a percentage of total ODA to Africa, 3-year average commitments



2.3.2. ODA to 5 largest recipients in Africa by sector in 2016

As a percentage of total ODA committed for each country



2.3.3. ODA to Africa by donor and sector in 2016

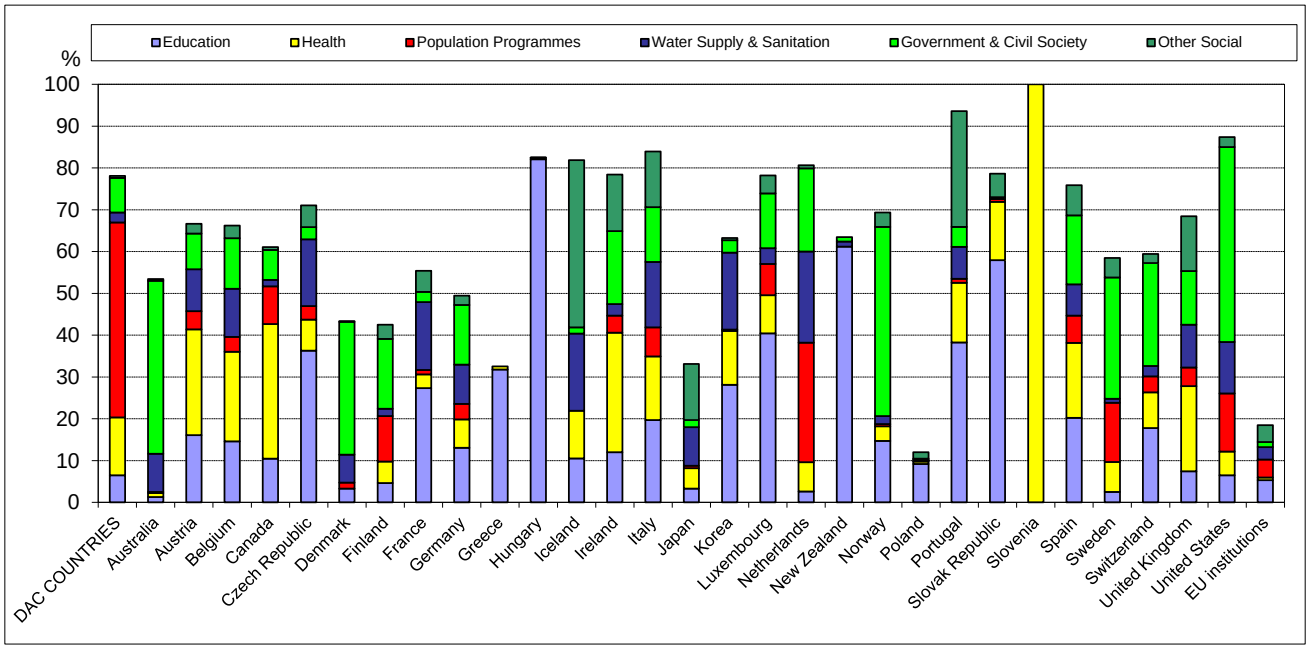
As a percentage of total bilateral commitments

	Australia	Austria	Belgium	Canada	Czech Republic	Denmark	Finland	France	Germany	Greece	Hungary	Iceland	Ireland	Italy	Japan	Korea	Luxembourg
SOCIAL	**42.9**	**63.3**	**52.3**	**44.5**	**55.2**	**26.4**	**29.7**	**46.1**	**42.1**	**32.5**	**67.8**	**77.4**	**55.6**	**72.4**	**29.8**	**59.5**	**58.3**
Education	**1.0**	**15.3**	**11.5**	**7.6**	**28.2**	**2.0**	**3.2**	**22.7**	**11.1**	**31.8**	**67.5**	**9.9**	**8.5**	**17.0**	**3.0**	**26.4**	**30.1**
of which: Basic education	**0.5**	**0.2**	**1.2**	**1.1**	**-**	**0.4**	**1.6**	**1.2**	**1.1**	**-**	**-**	**8.7**	**2.5**	**3.2**	**0.4**	**3.9**	**6.1**
Health	**0.8**	**24.0**	**16.9**	**23.5**	**5.8**	**-**	**3.6**	**2.8**	**5.8**	**0.7**	**-**	**10.8**	**20.2**	**13.1**	**4.4**	**12.1**	**6.8**
of which: Basic health	**0.6**	**2.9**	**4.9**	**20.1**	**5.1**	**-**	**3.3**	**2.4**	**4.3**	**-**	**-**	**10.8**	**8.2**	**3.9**	**0.8**	**8.0**	**1.6**
Population and reproductive health	**0.2**	**4.1**	**2.8**	**6.5**	**2.5**	**0.9**	**7.6**	**0.9**	**3.2**	**-**	**-**	**-**	**2.9**	**6.0**	**0.5**	**0.3**	**5.6**
Water supply and sanitation	**7.3**	**9.5**	**9.1**	**1.1**	**12.4**	**4.1**	**1.2**	**13.5**	**8.0**	**-**	**0.3**	**17.4**	**1.9**	**13.5**	**8.3**	**17.3**	**2.8**
Government and civil society	**33.2**	**8.1**	**9.6**	**5.2**	**2.3**	**19.3**	**11.7**	**2.0**	**12.1**	**-**	**0.1**	**1.4**	**12.4**	**11.3**	**1.5**	**2.8**	**9.8**
Other social infrastr. and services	**0.3**	**2.2**	**2.4**	**0.5**	**4.0**	**0.1**	**2.4**	**4.2**	**1.9**	**-**	**-**	**37.8**	**9.6**	**11.5**	**12.1**	**0.5**	**3.2**
ECONOMIC	**0.2**	**9.5**	**8.2**	**8.7**	**1.6**	**26.8**	**11.5**	**25.9**	**28.7**	**-**	**-**	**8.8**	**0.8**	**1.1**	**45.3**	**25.2**	**1.5**
Transport, communications	**0.0**	**0.1**	**1.5**	**0.0**	**-**	**2.5**	**0.4**	**10.8**	**0.8**	**-**	**-**	**-**	**0.0**	**0.3**	**12.0**	**24.8**	**0.3**
Energy	**0.1**	**9.3**	**6.0**	**7.0**	**0.2**	**2.9**	**0.2**	**11.7**	**15.2**	**-**	**-**	**8.8**	**0.1**	**0.7**	**33.0**	**0.3**	**0.2**
Banking, business and other services	**0.1**	**0.1**	**0.7**	**1.6**	**1.4**	**21.4**	**10.9**	**3.4**	**12.7**	**-**	**-**	**-**	**0.7**	**0.1**	**0.2**	**0.1**	**1.0**
PRODUCTION	**8.0**	**17.7**	**12.4**	**13.8**	**20.3**	**6.7**	**20.1**	**6.0**	**7.4**	**-**	**10.9**	**8.3**	**11.1**	**10.2**	**13.6**	**8.2**	**8.8**
Agriculture, forestry and fishing	**6.1**	**9.5**	**11.6**	**9.6**	**20.3**	**1.3**	**8.5**	**3.1**	**5.5**	**-**	**10.9**	**8.3**	**10.7**	**8.8**	**11.5**	**7.6**	**8.6**
Industry, mining and construction	**1.7**	**8.2**	**0.9**	**3.8**	**-**	**3.3**	**0.5**	**2.9**	**1.2**	**-**	**-**	**-**	**0.4**	**1.3**	**1.8**	**0.6**	**0.2**
Trade and tourism	**0.2**	**-**	**-**	**0.5**	**-**	**2.1**	**11.2**	**0.1**	**0.7**	**-**	**-**	**-**	**0.0**	**0.1**	**0.3**	**0.1**	**-**
MULTISECTOR	**29.2**	**4.5**	**6.0**	**5.9**	**0.7**	**1.0**	**8.6**	**5.2**	**6.9**	**67.5**	**3.5**	**0.1**	**3.4**	**2.5**	**1.3**	**1.1**	**5.9**
GENERAL PROGRAMME AID	**5.0**	**-**	**-**	**5.1**	**2.5**	**5.5**	**-**	**4.4**	**5.4**	**-**	**-**	**-**	**0.5**	**6.6**	**2.8**	**1.0**	**1.6**
DEBT	**0.3**	**-**	**0.2**	**-**	**-**	**-**	**-**	**0.3**	**0.1**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
HUMANITARIAN	**14.4**	**5.1**	**18.8**	**18.0**	**19.6**	**20.1**	**21.8**	**0.5**	**9.3**	**-**	**-**	**5.4**	**22.3**	**6.8**	**5.9**	**3.4**	**15.5**
OTHERS	**-**	**0.0**	**2.1**	**4.1**	**0.2**	**13.6**	**8.3**	**11.6**	**0.0**	**-**	**17.8**	**0.0**	**6.4**	**0.4**	**1.3**	**1.6**	**8.3**
TOTAL	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Food aid (emergency and development aid)	**9.1**	**2.6**	**3.9**	**14.6**	**4.4**	**0.8**	**8.2**	**0.2**	**7.2**	**-**	**-**	**0.5**	**4.3**	**6.8**	**3.3**	**1.3**	**1.6**

	As a percentage of total bilateral commitments												Percentage of multilateral finance		
	Netherlands	New Zealand	Norway	Poland	Portugal	Slovak Republic	Slovenia	Spain	Sweden	Switzerland	United Kingdom	United States	**Total DAC countries**	EU institutions	World Bank (IDA)	**Total multilaterals**
SOCIAL	**72.8**	**61.4**	**54.6**	**11.9**	**71.5**	**78.6**	**17.5**	**34.4**	**53.3**	**43.6**	**49.8**	**55.6**	**48.6**	**29.6**	**43.9**	**34.9**
Education	**2.4**	**59.2**	**11.6**	**9.2**	**29.2**	**57.9**	**-**	**9.2**	**2.3**	**13.0**	**5.4**	**4.6**	**8.5**	**4.2**	**8.1**	**5.4**
of which: Basic education	**-**	**-**	**5.7**	**0.1**	**0.0**	**0.6**	**-**	**1.6**	**0.5**	**6.0**	**1.2**	**4.1**	**2.3**	**0.5**	**0.5**	**1.2**
Health	**6.3**	**-**	**2.7**	**0.6**	**10.9**	**14.0**	**17.5**	**8.1**	**6.5**	**6.3**	**14.8**	**9.9**	**8.7**	**3.4**	**8.2**	**8.8**
of which: Basic health	**6.3**	**-**	**1.1**	**0.4**	**1.2**	**12.1**	**-**	**3.7**	**4.9**	**3.2**	**10.6**	**8.8**	**6.6**	**2.4**	**4.9**	**6.5**
Population and reproductive health	**25.8**	**-**	**0.4**	**0.2**	**0.7**	**0.7**	**-**	**3.0**	**12.9**	**2.8**	**3.2**	**33.2**	**14.1**	**1.0**	**1.4**	**2.4**
Water supply and sanitation	**19.6**	**1.2**	**1.5**	**0.4**	**5.9**	**-**	**-**	**3.4**	**0.8**	**1.9**	**7.4**	**1.7**	**6.0**	**3.2**	**7.9**	**4.5**
Government and civil society	**18.0**	**1.0**	**35.6**	**0.2**	**3.6**	**0.4**	**-**	**7.5**	**26.5**	**18.0**	**9.4**	**5.9**	**7.7**	**15.5**	**7.8**	**9.5**
Other social infrastr. and services	**0.6**	**-**	**2.7**	**1.5**	**21.2**	**5.6**	**-**	**3.3**	**4.2**	**1.6**	**9.5**	**0.3**	**3.6**	**2.2**	**10.5**	**4.3**
ECONOMIC	**3.0**	**19.1**	**3.6**	**0.2**	**1.6**	**0.3**	**-**	**1.4**	**6.5**	**12.7**	**11.6**	**6.1**	**16.8**	**26.9**	**29.3**	**27.5**
Transport, communications	**0.6**	**-**	**0.0**	**-**	**0.7**	**0.3**	**-**	**0.3**	**0.1**	**1.4**	**6.0**	**0.1**	**3.8**	**9.7**	**16.4**	**12.0**
Energy	**0.4**	**19.1**	**3.2**	**0.2**	**0.4**	**-**	**-**	**0.8**	**4.0**	**0.0**	**3.7**	**5.2**	**10.0**	**11.0**	**7.7**	**11.1**
Banking, business and other services	**2.0**	**-**	**0.4**	**-**	**0.5**	**-**	**-**	**0.2**	**2.4**	**11.3**	**1.9**	**0.8**	**3.0**	**6.2**	**5.2**	**4.4**
PRODUCTION	**9.0**	**6.6**	**6.7**	**87.6**	**1.1**	**20.5**	**-**	**8.2**	**10.4**	**8.6**	**3.8**	**5.7**	**7.9**	**10.2**	**15.2**	**11.1**
Agriculture, forestry and fishing	**8.7**	**6.6**	**5.4**	**87.6**	**0.5**	**20.5**	**-**	**8.1**	**7.6**	**6.0**	**2.3**	**4.7**	**6.1**	**7.8**	**10.6**	**8.6**
Industry, mining and construction	**-**	**-**	**1.2**	**-**	**0.0**	**-**	**-**	**0.0**	**2.8**	**2.2**	**1.0**	**0.1**	**1.2**	**2.0**	**1.8**	**1.5**
Trade and tourism	**0.3**	**-**	**0.1**	**-**	**0.6**	**-**	**-**	**0.0**	**0.1**	**0.5**	**0.5**	**0.8**	**0.6**	**0.4**	**2.8**	**1.0**
MULTISECTOR	**5.4**	**9.7**	**13.9**	**-**	**2.3**	**0.6**	**-**	**1.4**	**21.0**	**8.4**	**7.5**	**3.8**	**5.2**	**13.3**	**8.2**	**11.3**
GENERAL PROGRAMME AID	**0.5**	**-**	**-**	**-**	**20.5**	**-**	**-**	**4.3**	**-**	**-**	**0.4**	**3.4**	**3.3**	**6.3**	**0.1**	**4.5**
DEBT	**-**	**-**	**4.4**	**-**	**-**	**-**	**-**	**32.4**	**-**	**-**	**-**	**0.0**	**0.3**	**-**	**-**	**0.0**
HUMANITARIAN	**9.2**	**-**	**16.8**	**0.3**	**0.0**	**-**	**82.5**	**7.9**	**8.2**	**26.6**	**25.4**	**25.4**	**15.9**	**10.6**	**3.2**	**6.9**
OTHERS	**-**	**3.3**	**0.1**	**-**	**3.1**	**-**	**-**	**10.1**	**0.6**	**0.1**	**1.4**	**-**	**2.2**	**3.2**	**-**	**3.9**
TOTAL	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Food aid (emergency and development aid)	**1.9**	**-**	**5.9**	**-**	**-**	**-**	**21.0**	**6.3**	**-**	**10.6**	**16.0**	**16.1**	**9.6**	**3.1**	**0.1**	**1.3**

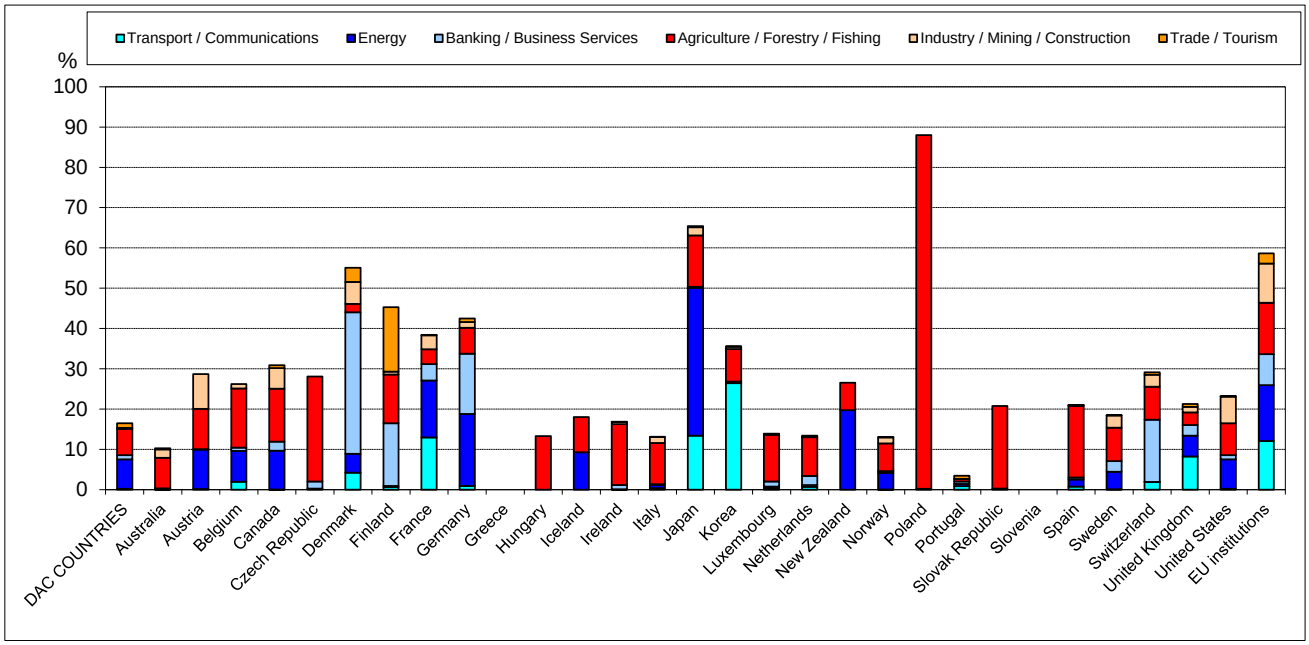
2.3.4. Analysis of social sector ODA to Africa by donor

As a percentage of total sector-allocable commitments for each donor in 2016



2.3.5. Analysis of economic and production sector ODA to Africa by donor

As a percentage of total sector-allocable commitments for each donor in 2016



2.3.6. ODA to Africa by sector and recipient in 2016

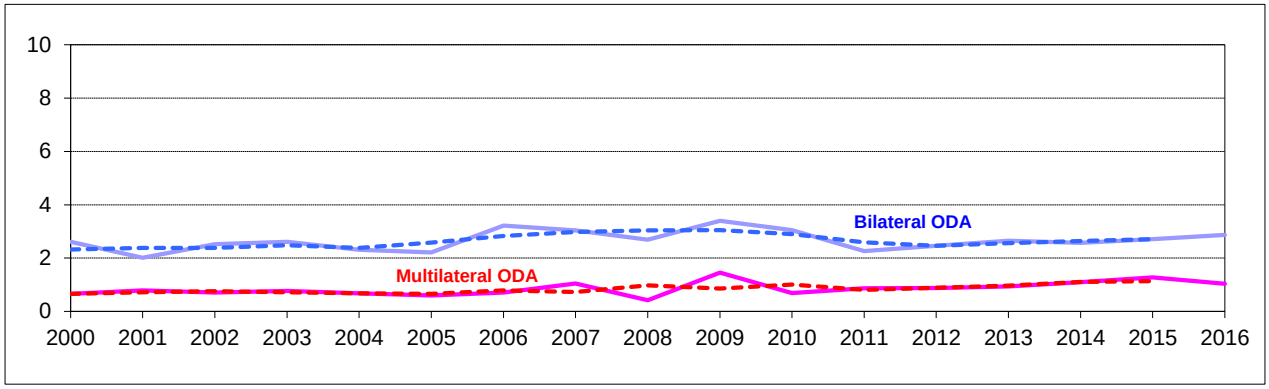
USD million, commitments

	SOCIAL	ECONOMIC	PRODUCTION	MULTI-SECTOR	GEN.PROG. AID	DEBT	HUMANI-TARIAN	OTHERS	TOTAL
Algeria	140	17	1	7	-	-	25	4	**194**
Angola	208	26	3	10	0	-	5	1	**254**
Benin	435	121	38	39	128	0	1	4	**766**
Botswana	84	3	4	2	-	0	2	0	**95**
Burkina Faso	653	151	241	95	244	0	15	8	**1 407**
Burundi	327	1	89	36	42	0	58	2	**556**
Cabo Verde	68	2	12	8	65	-	1	2	**159**
Cameroon	530	143	25	83	1	0	86	50	**919**
Central African Republic	75	0	9	22	47	0	228	3	**384**
Chad	254	51	1	67	387	0	217	2	**979**
Comoros	37	1	0	17	-	0	1	1	**58**
Congo	178	0	16	4	3	-	10	34	**245**
Côte d'Ivoire	381	223	111	37	102	41	77	253	**1 225**
Democratic Republic of the Congo	903	370	189	104	37	4	337	43	**1 987**
Djibouti	91	95	15	6	31	0	35	1	**274**
Egypt	869	1 541	408	23	-	5	42	3	**2 891**
Equatorial Guinea	4	0	0	2	-	0	0	1	**7**
Eritrea	18	0	24	3	-	-	7	1	**53**
Ethiopia	1 143	893	425	344	282	-	1 151	6	**4 244**
Gabon	253	103	16	41	-	2	0	1	**416**
Gambia	78	47	9	22	14	-	0	1	**171**
Ghana	387	751	257	43	231	-	1	4	**1 674**
Guinea	250	57	56	18	69	6	27	27	**511**
Guinea-Bissau	87	1	2	21	9	5	0	0	**124**
Kenya	1 575	628	327	174	17	0	275	10	**3 006**
Lesotho	215	23	2	6	6	-	12	1	**266**
Liberia	411	83	54	87	41	0	22	3	**701**
Libya	106	-	0	4	0	-	35	0	**146**
Madagascar	333	202	105	275	98	0	39	3	**1 054**
Malawi	992	117	105	56	136	0	124	3	**1 533**
Mali	686	223	120	34	68	0	129	4	**1 266**
Mauritania	103	241	35	16	16	0	25	6	**443**
Mauritius	26	36	3	6	-	-	0	1	**73**
Morocco	673	910	279	223	10	-	11	8	**2 114**
Mozambique	873	77	188	83	63	0	75	41	**1 400**
Namibia	87	34	28	51	0	-	0	1	**202**
Niger	438	108	454	17	216	0	147	6	**1 385**
Nigeria	1 947	211	49	130	3	-	343	7	**2 691**
Rwanda	528	522	331	139	104	0	53	2	**1 680**
Saint Helena	36	84	-	4	-	-	-	-	**125**
Sao Tome and Principe	44	8	15	4	10	0	0	1	**81**
Senegal	787	136	111	101	59	0	22	8	**1 225**
Seychelles	2	1	19	6	-	0	-	0	**28**
Sierra Leone	419	136	82	9	71	0	49	2	**769**
Somalia	410	20	11	62	42	0	550	5	**1 102**
South Africa	1 065	119	76	62	1	-	18	5	**1 347**
South Sudan	490	6	7	37	33	-	1 227	1	**1 802**
Sudan	142	3	217	37	124	-	445	3	**972**
Swaziland	79	0	7	1	-	-	8	0	**96**
Tanzania	1 926	551	329	202	0	0	97	11	**3 117**
Togo	170	36	54	32	62	0	0	1	**355**
Tunisia	925	308	85	84	-	2	6	5	**1 413**
Uganda	1 025	343	282	118	7	-	202	4	**1 981**
Zambia	657	238	108	23	5	0	11	4	**1 047**
Zimbabwe	371	4	49	34	48	-	103	3	**613**
North of Sahara, regional	119	17	1	13	1	-	17	3	**171**
South of Sahara, regional	1 037	660	254	680	171	-	429	89	**3 321**
Africa, regional	632	1 281	328	801	154	30	123	67	**3 417**
Africa total	**26 788**	**11 966**	**6 070**	**4 666**	**3 260**	**100**	**6 926**	**761**	**60 536**

Education

2.3.7. Total ODA to education

USD billion, 2015 prices and exchange rates, commitments with 3 year moving averages (dotted lines)

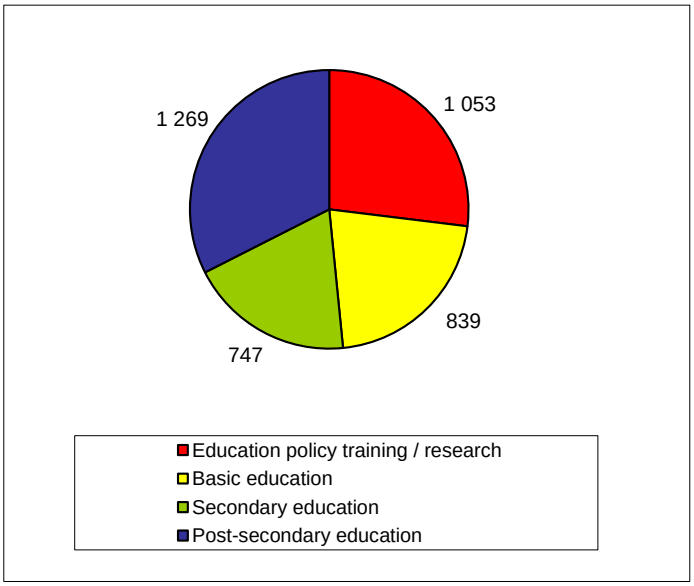


2.3.8. Top 10 recipients 2016

Top 10 donors 2016	*commitments, USD million*	Tanzania	Kenya	Tunisia	Morocco	Nigeria	Gabon	Egypt	Mozambique	Niger	Ethiopia	Others	**Total**
	France	0	4	50	137	52	184	11	24	5	2	1	**876**
	IDA	179	56	-	-	100	-	-	6	-	24	24	**568**
	United States	57	54	3	18	17	-	35	38	2	33	14	**546**
	Germany	3	9	33	30	13	1	66	30	0	8	2	**468**
	EU Institutions	-	-	144	17	-	-	-	-	85	-	-	**319**
	Korea	7	98	0	1	0	-	6	8	-	5	2	**141**
	United Kingdom	43	0	-	0	3	-	0	5	-	5	1	**140**
	Canada	45	13	-	2	7	-	-	4	-	0	0	**128**
	Japan	4	9	1	3	2	1	27	4	1	6	4	**116**
	Norway	7	0	-	-	10	-	0	2	0	8	4	**81**
	Other donors	15	9	6	9	6	0	6	22	40	40	374	**526**
	Total	**360**	**251**	**236**	**216**	**209**	**186**	**151**	**142**	**132**	**131**	**1 894**	**3 909**

2.3.9. ODA to education by subsector 2016

USD million, commitments



2.3.10. ODA commitments to education

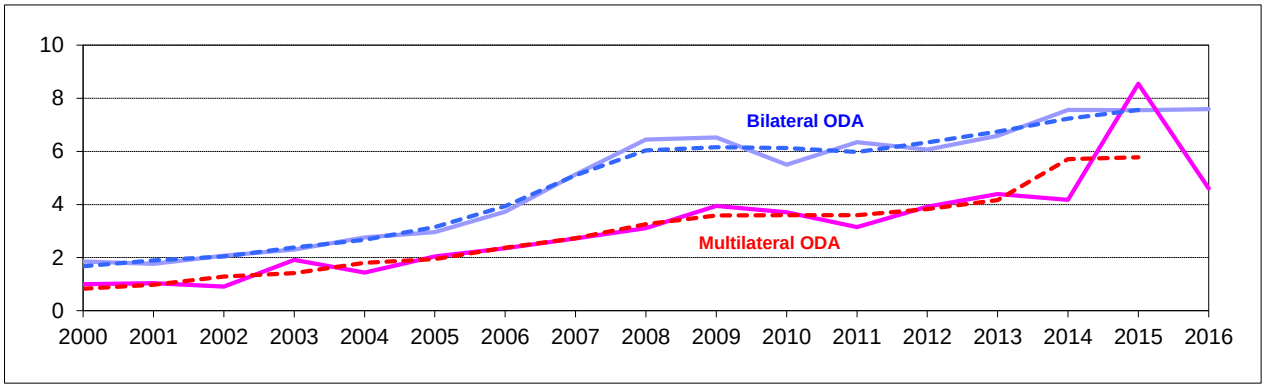
USD million

	2013	2014	2015	2016
Australia	0	0	-	1
Austria	10	7	12	15
Belgium	70	48	58	53
Canada	106	246	147	128
Czech Republic	2	2	2	2
Denmark	6	0	4	4
Finland	38	17	25	4
France	762	844	651	876
Germany	399	510	519	468
Greece	2	2	2	0
Hungary	-	-	3	4
Iceland	3	2	1	1
Ireland	32	36	28	21
Italy	33	50	45	43
Japan	214	135	131	116
Korea	118	24	37	141
Luxembourg	32	40	34	37
Netherlands	1	2	20	18
New Zealand	2	2	3	3
Norway	146	119	117	81
Poland	42	16	16	8
Portugal	34	38	27	31
Slovak Republic	1	1	1	1
Slovenia	0	-	0	-
Spain	18	20	12	15
Sweden	14	16	36	16
Switzerland	80	59	14	57
United Kingdom	181	186	263	140
United States	287	381	471	546
DAC countries	**2 632**	**2 803**	**2 682**	**2 830**
EU Institutions	243	173	236	319

Health

2.3.11. Total ODA to health

USD billion, 2015 prices and exchange rates, commitments with 3 year moving averages (dotted lines)



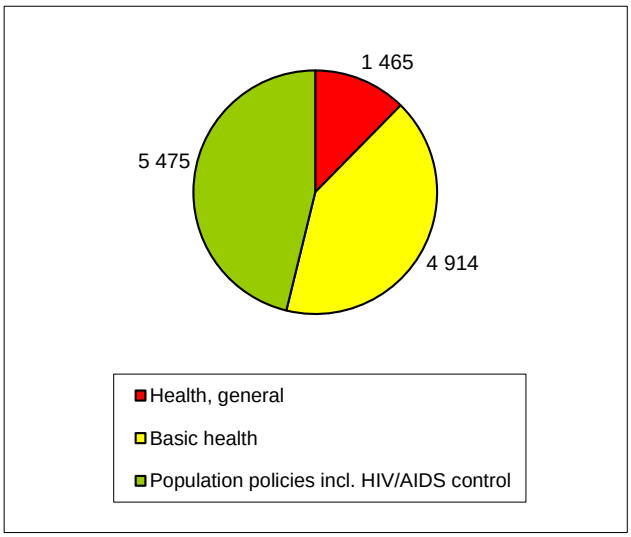
2.3.12. Top 10 recipients 2016

Top 10 donors 2016

commitments, USD million	Nigeria	South Africa	Kenya	Tanzania	Malawi	Dem. Rep. of Congo	Ethiopia	Mozambique	Uganda	Zambia	Others	**Total**
United States	495	581	575	430	173	164	284	325	421	322	1 336	**5 108**
Global Fund	-	316	-	127	348	-	-	6	-	-	1 299	**2 096**
IDA	250	-	150	-	38	182	-	41	-	41	344	**1 044**
EU Institutions	88	-	-	-	77	160	127	33	-	-	258	**744**
Canada	15	-	20	78	28	22	14	29	1	4	292	**504**
United Kingdom	47	2	7	9	20	1	29	8	36	3	302	**463**
Germany	12	14	11	34	17	3	13	-	4	0	270	**378**
Netherlands	0	0	-	-	-	6	49	21	-	-	163	**240**
Japan	2	1	4	4	1	4	1	1	2	6	166	**192**
UNICEF	19	0	4	5	2	26	12	5	8	2	67	**150**
Other donors	7	8	18	37	13	55	43	59	38	6	650	**934**
Total	**935**	**922**	**789**	**724**	**718**	**624**	**572**	**529**	**510**	**385**	**5 147**	**11 854**

2.3.13. ODA to health by subsector 2016

USD million, commitments



2.3.14. ODA commitments to health

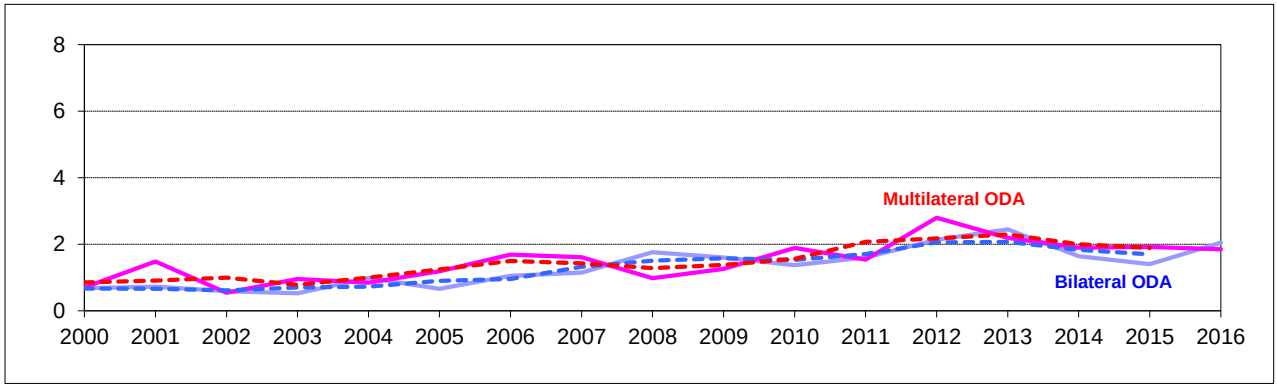
USD million

	2013	2014	2015	2016
Australia	23	16	14	1
Austria	13	7	2	27
Belgium	99	142	81	91
Canada	351	300	377	504
Czech Republic	1	1	1	1
Denmark	15	109	41	2
Finland	6	39	3	15
France	155	238	244	139
Germany	258	207	200	378
Greece	0	0	0	0
Hungary	-	-	0	-
Iceland	3	2	1	2
Ireland	83	90	61	58
Italy	36	53	49	48
Japan	253	221	189	192
Korea	93	53	188	66
Luxembourg	18	21	17	15
Netherlands	178	51	105	240
New Zealand	-	-	-	-
Norway	130	108	56	22
Poland	1	0	0	1
Portugal	17	20	23	12
Slovak Republic	0	0	0	0
Slovenia	1	-	0	0
Spain	36	45	16	18
Sweden	89	115	99	133
Switzerland	45	73	78	40
United Kingdom	582	2 126	457	463
United States	4 196	3 832	5 200	5 108
DAC countries	**6 658**	**7 855**	**7 488**	**7 575**
EU Institutions	299	324	174	744

Water

2.3.15. Total ODA to water

USD billion, 2015 prices and exchange rates, commitments with 3 year moving averages (dotted lines)



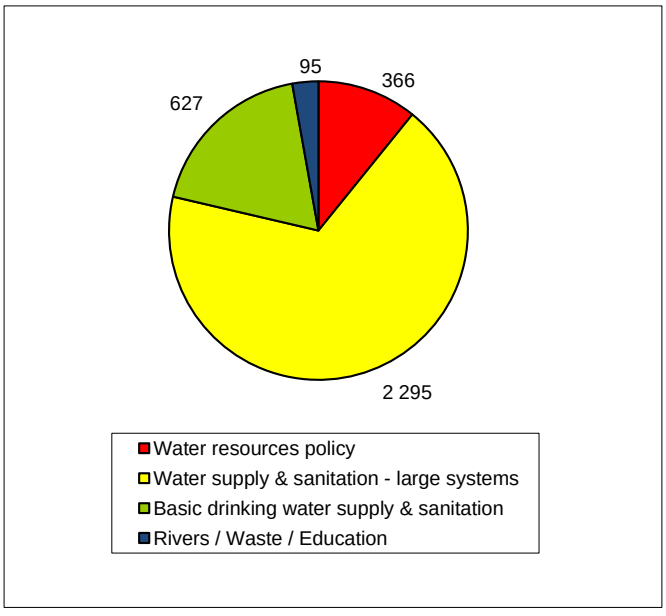
2.3.16. Top 10 recipients 2016

Top 10 donors 2016

commitments, USD million	Tunisia	Senegal	Mali	Tanzania	Burkina Faso	Morocco	Ethiopia	Mozambique	Uganda	Congo	Others	**Total**
France	67	106	60	-	51	39	1	0	-	111	86	**521**
EU Institutions	-	-	55	50	96	83	-	-	-	-	198	**482**
IDA	-	-	50	-	-	-	-	90	-	-	334	**474**
Germany	113	-	43	11	13	50	11	0	20	-	75	**336**
Japan	0	253	0	3	2	2	4	3	2	0	55	**325**
United States	-	7	7	-	0	0	19	3	0	-	165	**201**
United Kingdom	-	-	-	67	-	-	98	8	-	-	19	**191**
Arab Fund (AFESD)	166	-	-	-	-	-	-	-	-	-	-	**166**
Netherlands	-	-	0	-	-	-	-	18	-	-	128	**147**
African Dev. Bank	-	-	-	-	-	-	-	-	91	-	44	**135**
Other donors	73	2	17	94	28	1	25	7	7	0	151	**405**
Total	**419**	**368**	**232**	**223**	**190**	**175**	**158**	**130**	**121**	**111**	**1 255**	**3 383**

2.3.17. ODA to water by subsector 2016

USD million, commitments



2.3.18. ODA commitments to water

USD million

	2013	2014	2015	2016
Australia	54	19	11	6
Austria	17	11	6	9
Belgium	30	43	47	42
Canada	23	20	65	19
Czech Republic	1	1	1	1
Denmark	82	78	18	8
Finland	3	4	14	2
France	220	857	233	521
Germany	642	279	402	336
Greece	-	-	-	-
Hungary	-	-	0	0
Iceland	1	2	3	3
Ireland	6	5	5	5
Italy	5	8	12	34
Japan	509	84	70	325
Korea	58	10	15	93
Luxembourg	7	8	10	3
Netherlands	179	80	72	147
New Zealand	1	-	0	0
Norway	1	3	4	11
Poland	0	0	0	0
Portugal	0	2	0	6
Slovak Republic	0	0	0	-
Slovenia	-	-	0	-
Spain	6	7	5	6
Sweden	18	16	5	6
Switzerland	93	49	33	8
United Kingdom	114	99	107	191
United States	414	105	125	201
DAC countries	**2 484**	**1 792**	**1 264**	**1 981**
EU institutions	499	27	86	482

جدیدترین اطلاعات "سازمان بهداشت جهانی وابسته به سازمان ملل متحد" در خصوص بیماریهای غیر واگیر[۲]

World Health Organization (WHO) & ESRD

نکات کلیدی:

- بیماری های غیر واگیر، علت مرگ ۴۱ میلیون نفردرهر سال در جهان هستند (۷۱٪ از کل مرگ و میر جهانی).
- هر ساله ۱۵ میلیون نفر از یکی از بیماریی های غیر واگیر بین سنین ۳۰ تا ۶۹ ساله میمیرند.
- بیش از ۸۵٪ از این مرگ و میر "زودرس" در کشورهای کم درآمد و متوسط می باشد.
- بیماری های قلبی عروقی بیشترین سهم را در مرگ و میرهای ناشی از بیماریی های غیر واگیر را دارند (۱۷/۹ میلیون نفر در سال) ، به دنبال آن سرطان (۹/۰ میلیون نفر)، بیماری های تنفسی (۳/۹ میلیون) و دیابت (۱/۶ میلیون نفر).
- این ۴ گروه از بیماریی های غیر واگیر، بیش از ۸۰٪ از همه مرگ و میرهای ناشی از بیماریی های غیر واگیر را تشکیل می دهند.
- مصرف دخانیات، عدم فعالیت فیزیکی، مشروبات الکلی و رژیم های ناسالم، موجب افزایش خطر مرگ و میر ناشی از بیماریی های غیر واگیر می گردند.
- تشخیص، غربالگری و درمان بیماریی های غیر واگیر، و همچنین مراقبت های تسکینی، مولفه های کلیدی پاسخ به بیماریی های غیر واگیر هستند.
- پیش بینی می گردد؛ بطور متوسط مرگ و میرهای ناشی از بیماریی های غیر واگیر در بین سالهای ۲۰۱۰ و ۲۰۲۰، به میزان ۱۵٪ در جهان افزایش خواهد یافت.[۳]
- بیشترین میزان افزایش در، آفریقا، مدیترانه شرقی و جنوب شرقی آسیا، به میزان بیش از ۲۰ درصد پیش بینی می گردد.

[2] http://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases
[3] Global status report on noncommunicable diseases- 2010

	Total Population	number of death all causes per thousand population	Total number of death all causes	Percentage of Deaths from NCDs	Total number of NCD Deaths	Risk of Premature Death from target NCDs
France	64,457,000	8.8	567,222	87%	487,000	11%
Germany	81,708,000	11.2	915,130	91%	800,000	12%
USA	320,000,000	8.4	2,688,000	88%	2,343,000	14%
Iran	79,360,000	4.513	358,152	81%	291,000	15%
Kenya	47,236,000	5.732	270,757	33%	106,000	18%
China	1,405,000,000	7.3	10,256,500	89%	8,792,000	18%
Georgia	3,952,000	13.228	52,277	93%	46,000	22%
Azerbaijan	9,617,000	5.8	55,779	86%	57,000	24%
South Africa	55,291,000	9.793	541,465	48%	260,000	26%
Kazakhstan	17,750,000	7.37	130,818	82%	123,000	29%
Ukraine	44,658,000	14.7	656,473	90%	605,000	29%
Russia	144,000,000	12.9	1,857,600	86%	1,719,000	29%
Uganda	41,652,937	7.16	297,000	33%	98,000	24.7%

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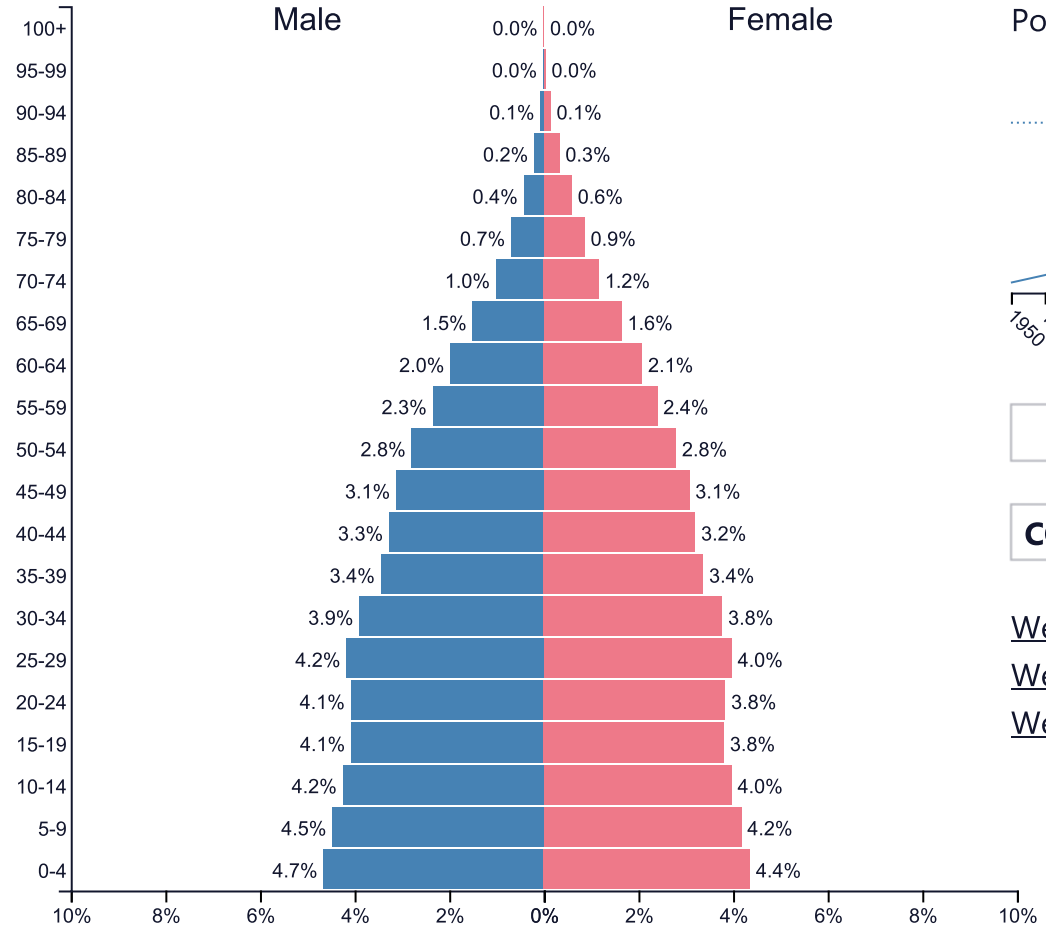
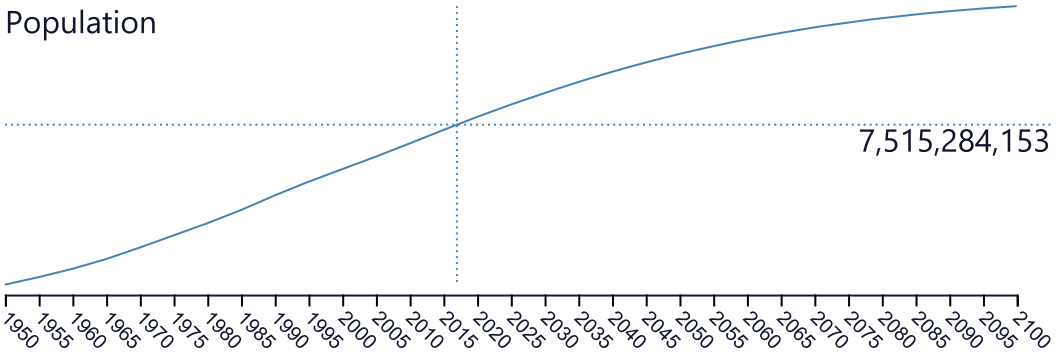
WORLD

2017

Population: 7,515,284,153





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Western Africa
Western Asia
Western Europe
Western Sahara
WORLD

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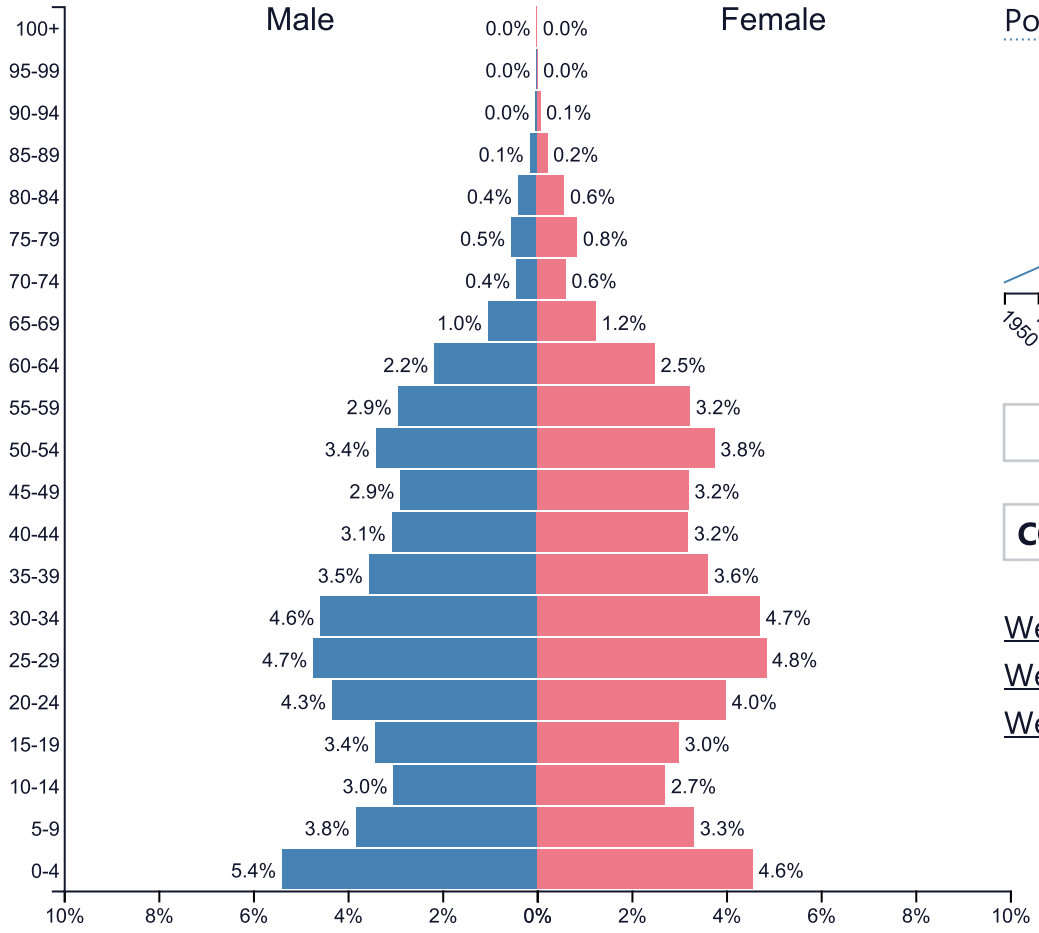
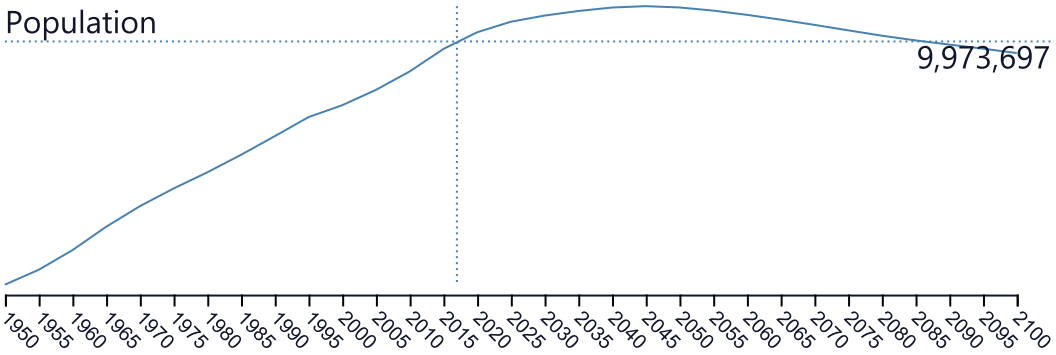
Azerbaijan

2017

Population: 9,973,696





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Western Africa
Western Asia
Western Europe
Western Sahara
WORLD

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See also the number of migrants for this country.

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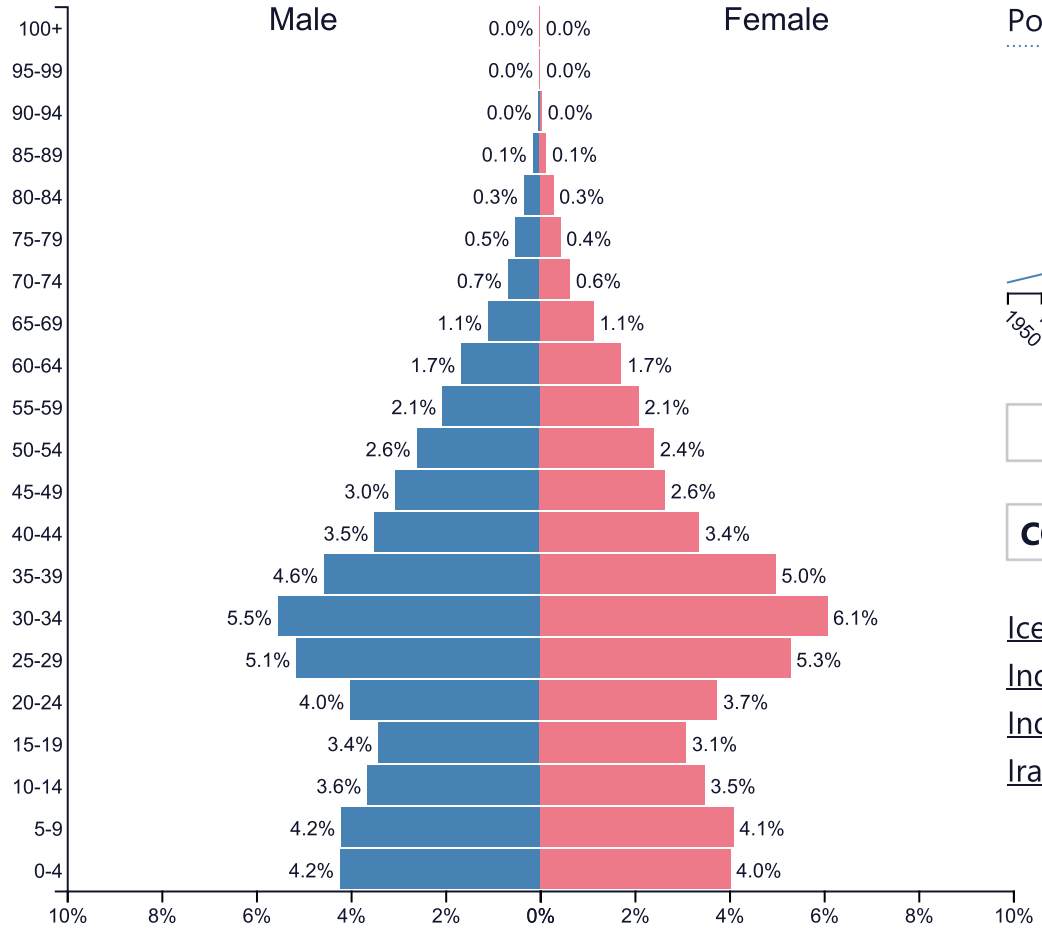
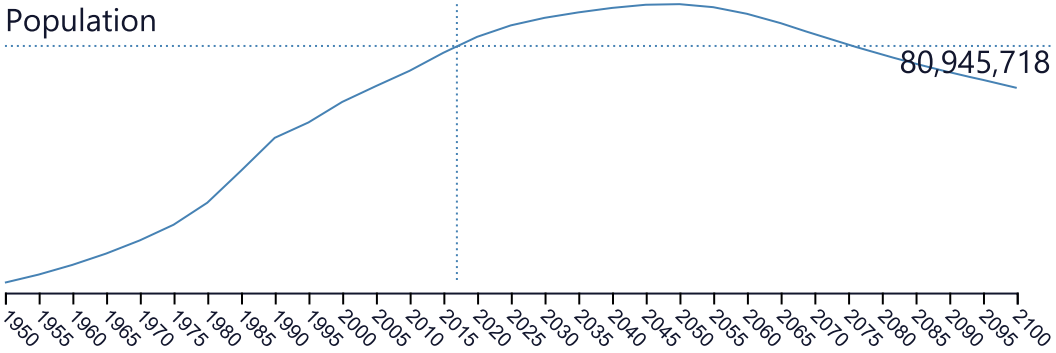
Iran (Islamic Republic of)

2017

Population: 80,945,718





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COUNTRY A B C D E F G H I J K L M N O P Q R S T U V W Y Z

Iceland
India
Indonesia
Iran (Islamic Republic of)
Iraq
Ireland
Israel
Italy

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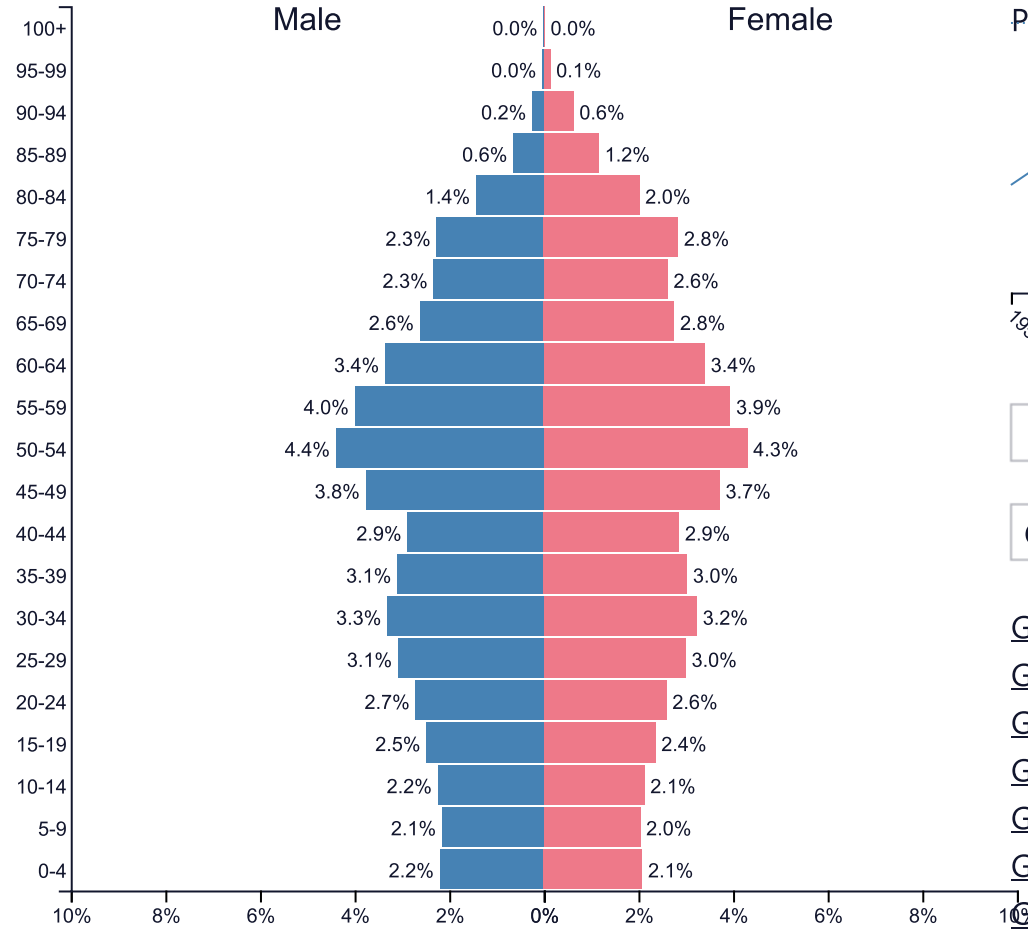
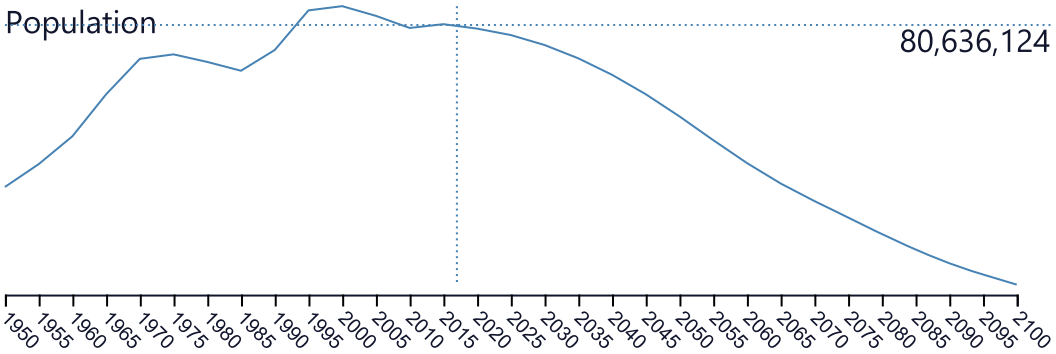
Germany

2017

Population: 80,636,124





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COUNTRY A B C D E F G H I J K L M N O P Q R S T U V W Y Z

Gabon
Gambia
Georgia
Germany
Ghana
Greece
Grenada
Guadeloupe
Guam
Guatemala
Guinea
Guinea-Bissau
Guyana

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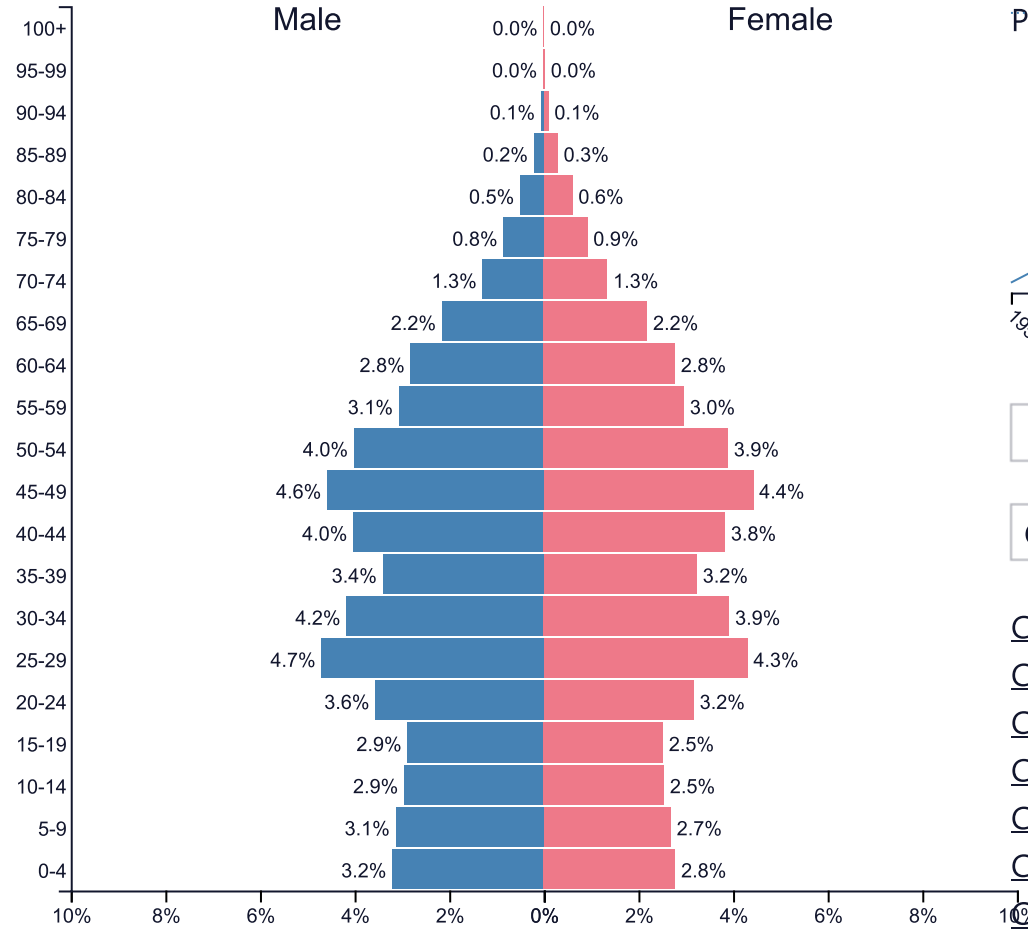
China

2017

Population: 1,388,232,692



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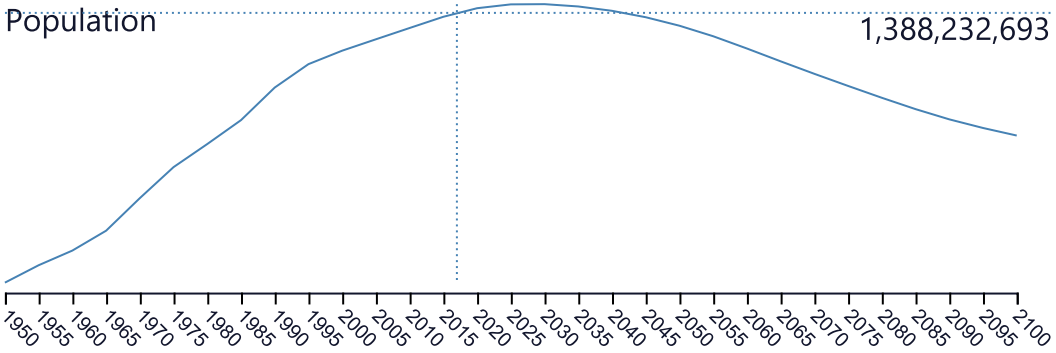

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COUNTRY A B C D E F G H I J K L M N O P Q R S T U V W Y Z

Cabo Verde
Cambodia
Cameroon
Canada
Caribbean
Central African Republic
Central America
Central Asia
Chad
Channel Islands
China, Hong Kong SAR
China, Macao SAR
Colombia
Comoros
Congo
Costa Rica
Côte d'Ivoire
Croatia
Cuba
Curaçao

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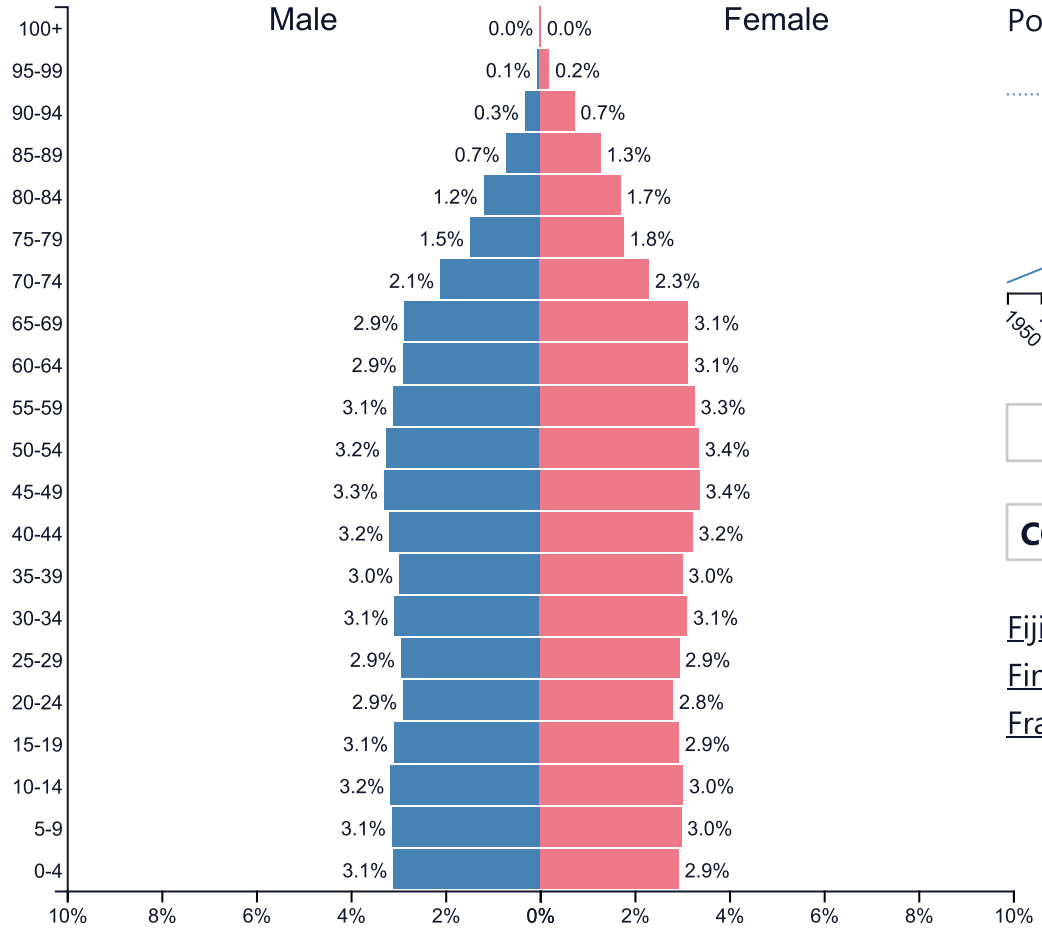
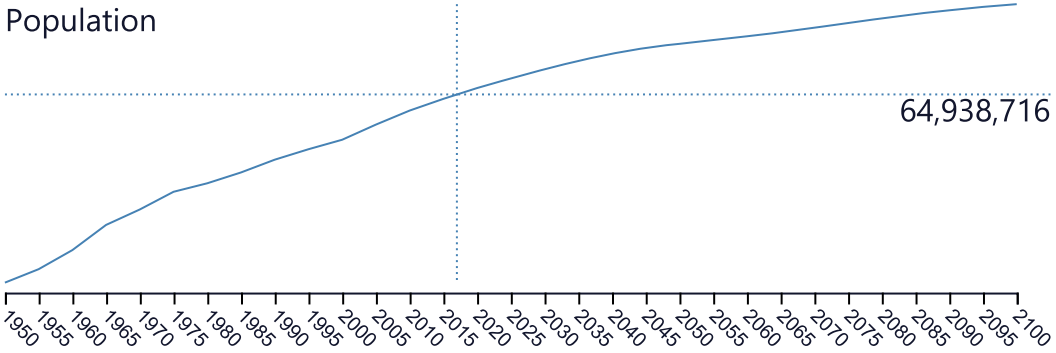
Mailing List - See more

France

2017

Population: 64,938,715





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COUNTRY A B C D E F G H I J K L M N O P Q R S T U V W Y Z

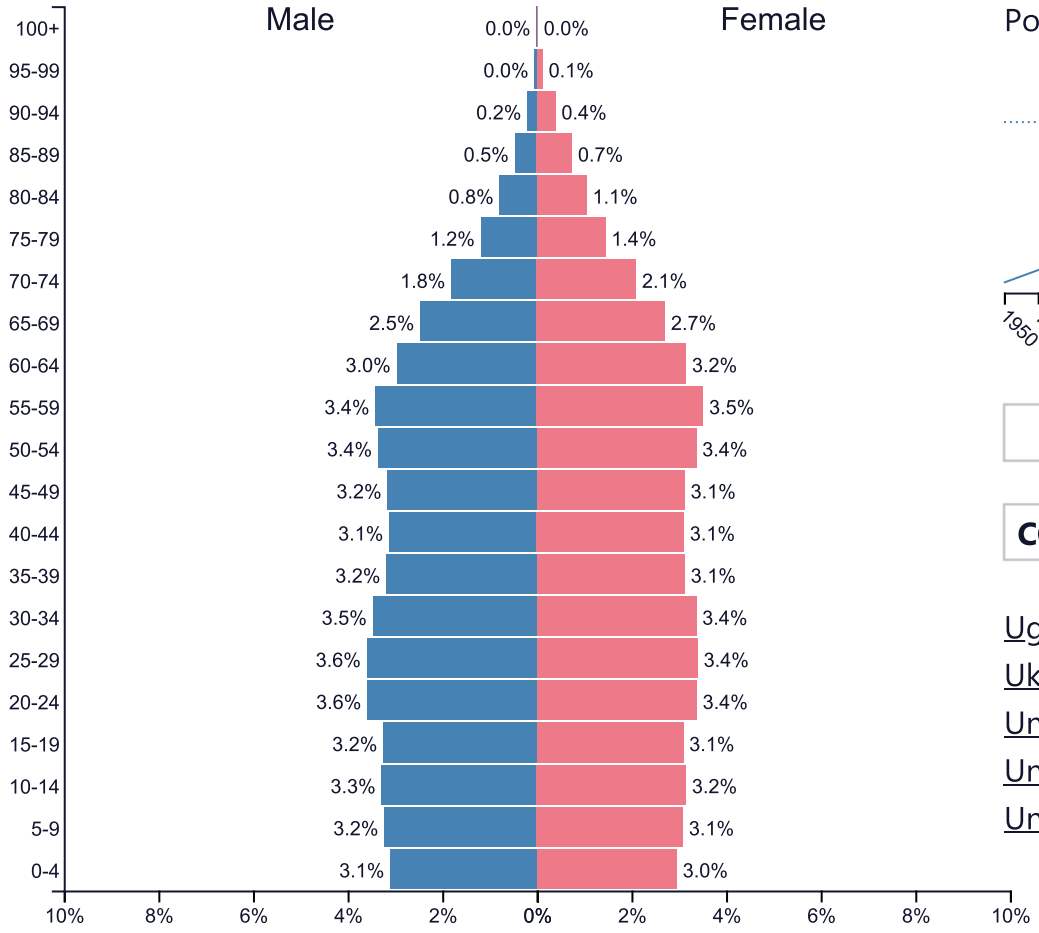
Fiji
Finland
France
French Guiana
French Polynesia

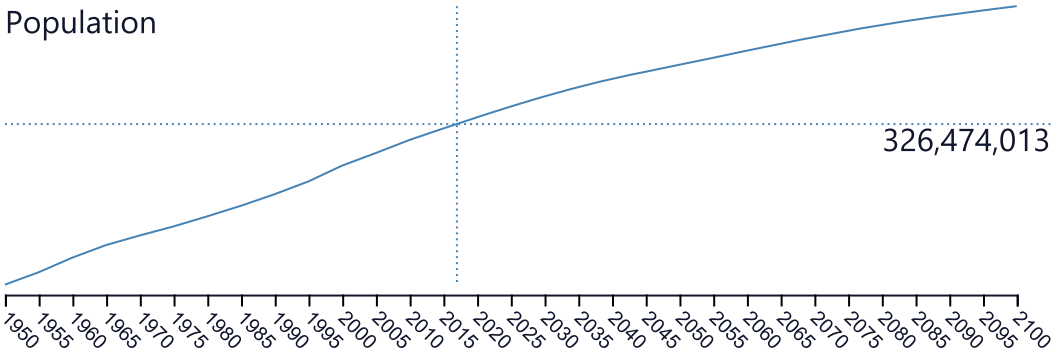
Download

United States of America

2017

Population: 326,474,013





YEAR -5 -1 2017 +1 +5

COUNTRY A B C D E F G H I J K L M N O P Q R S T U V W Y Z

Uganda
Ukraine
United Arab Emirates
United Kingdom
United Republic of Tanzania
United States of America
United States Virgin Islands
Uruguay
Uzbekistan

Download

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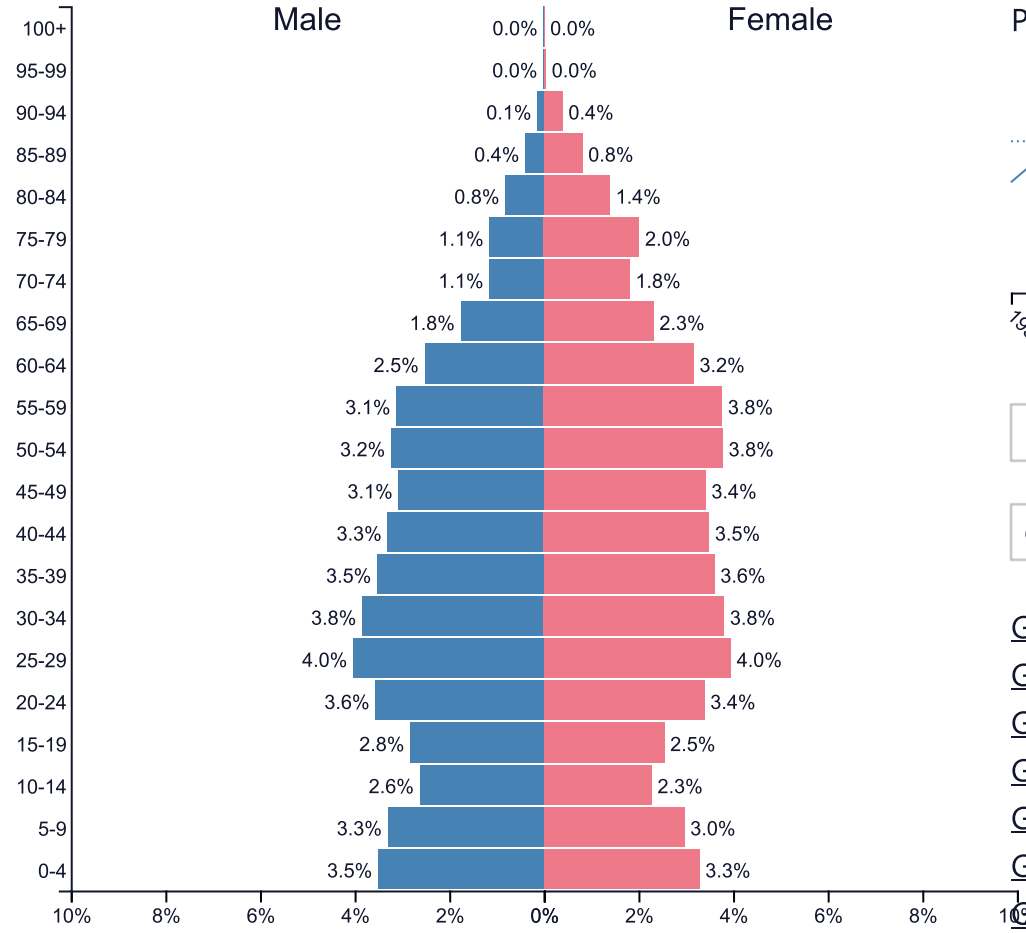
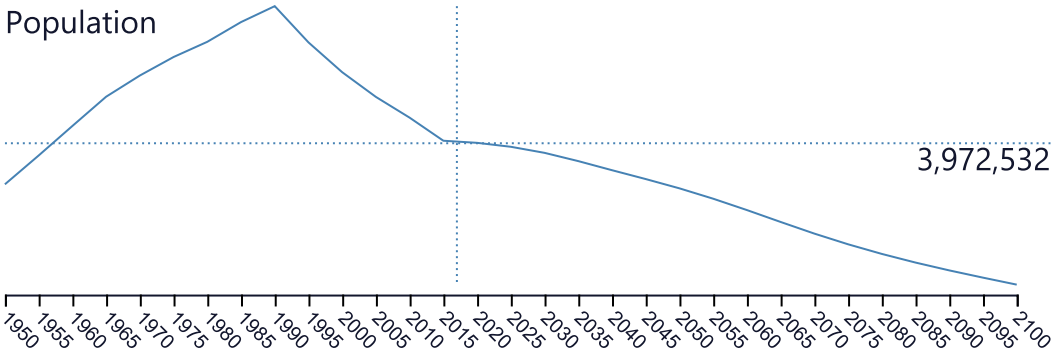
Georgia

2017

Population: 3,972,531





YEAR -5 -1 2017 +1 +5

COUNTRY A B C D E F G H I J K L M N O P Q R S T U V W Y Z

Gabon
Gambia
Georgia
Germany
Ghana
Greece
Grenada
Guadeloupe
Guam
Guatemala
Guinea
Guinea-Bissau
Guyana

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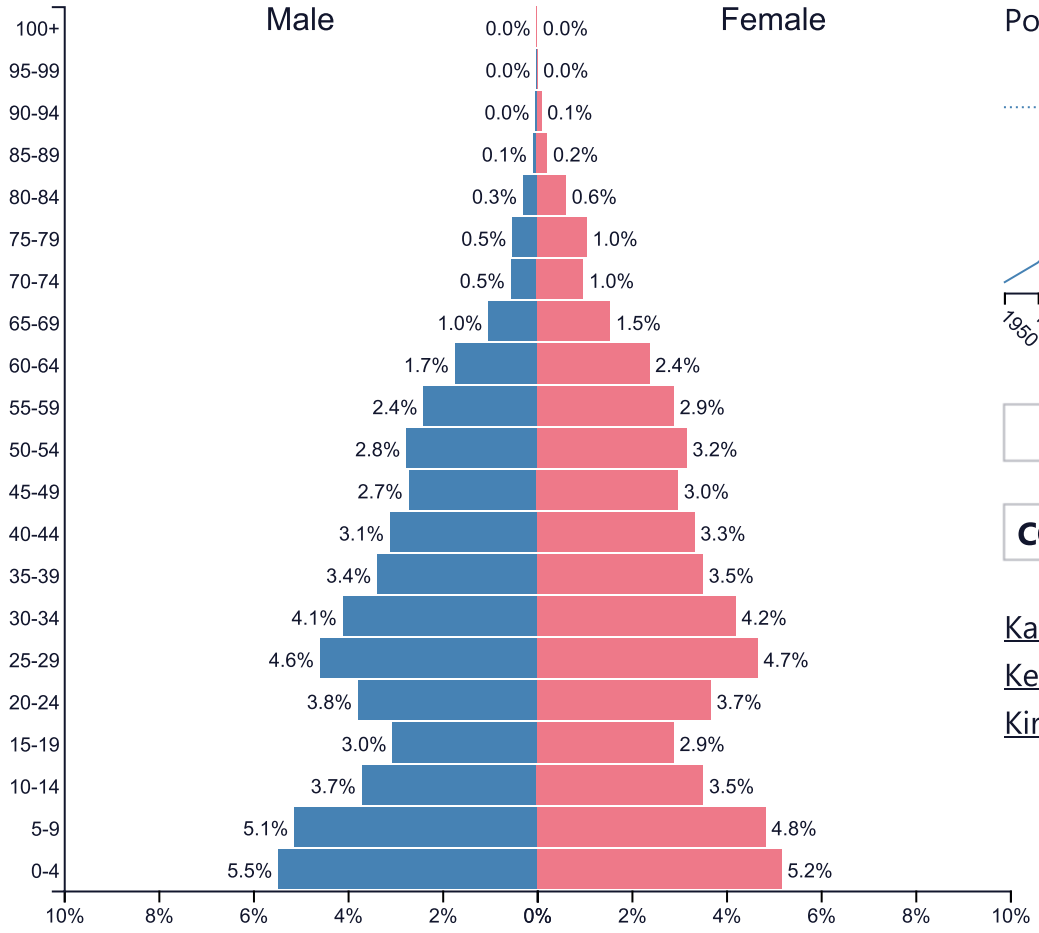
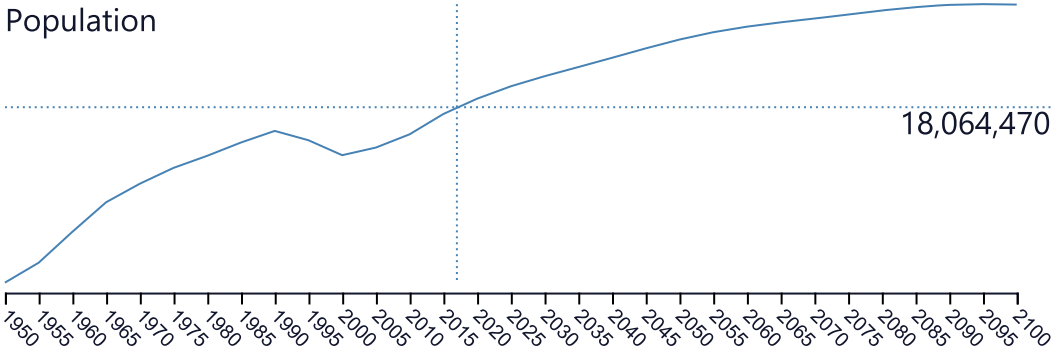
Kazakhstan

2017

Population: 18,064,470





YEAR -5 -1 2017 +1 +5

COUNTRY A B C D E F G H I J K L M N O P Q R S T U V W Y Z

Kazakhstan
Kenya
Kiribati
Kuwait
Kyrgyzstan

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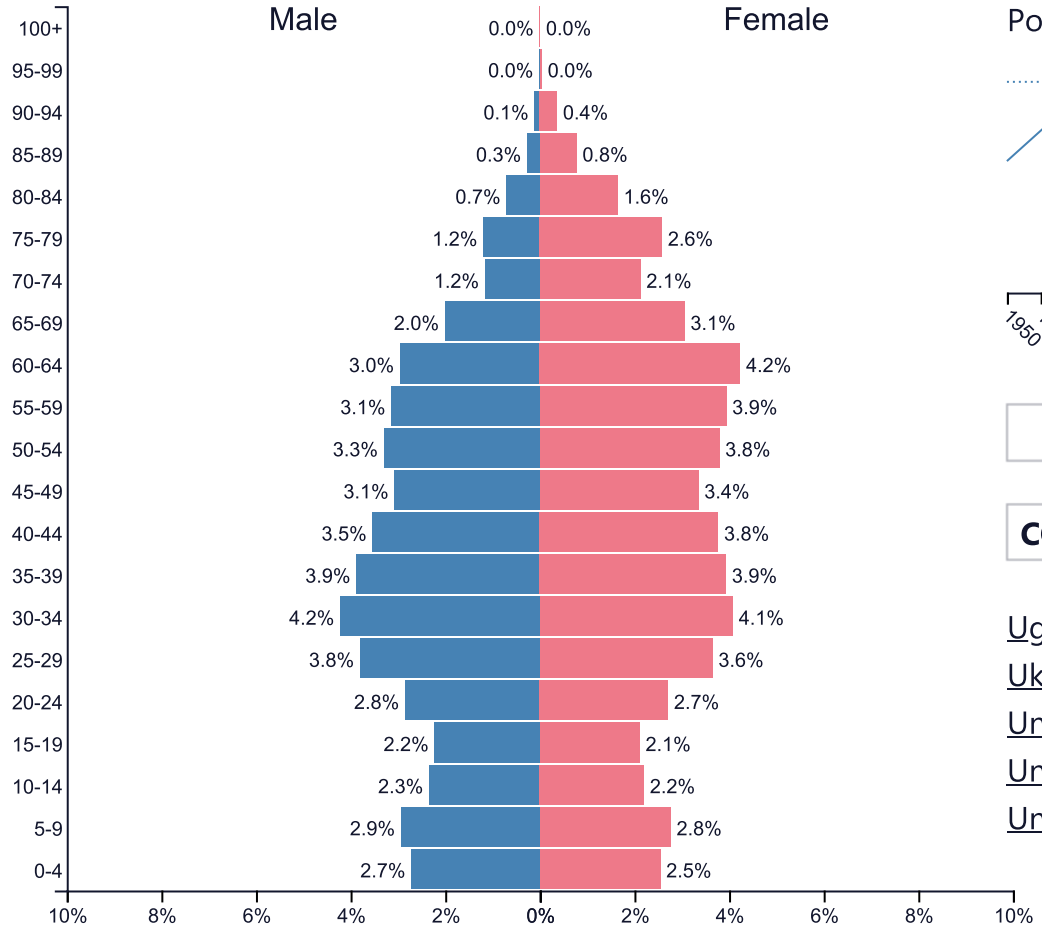
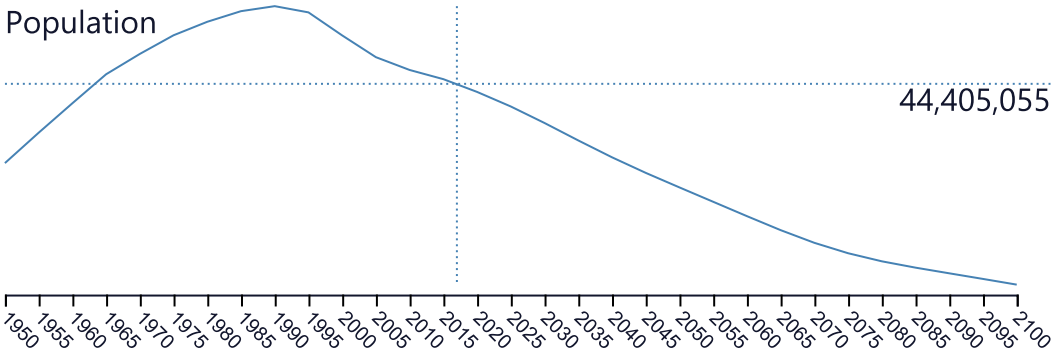
Ukraine

2017

Population: 44,405,055





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COUNTRY A B C D E F G H I J K L M N O P Q R S T U V W Y Z

Uganda
Ukraine
United Arab Emirates
United Kingdom
United Republic of Tanzania
United States of America
United States Virgin Islands
Uruguay
Uzbekistan

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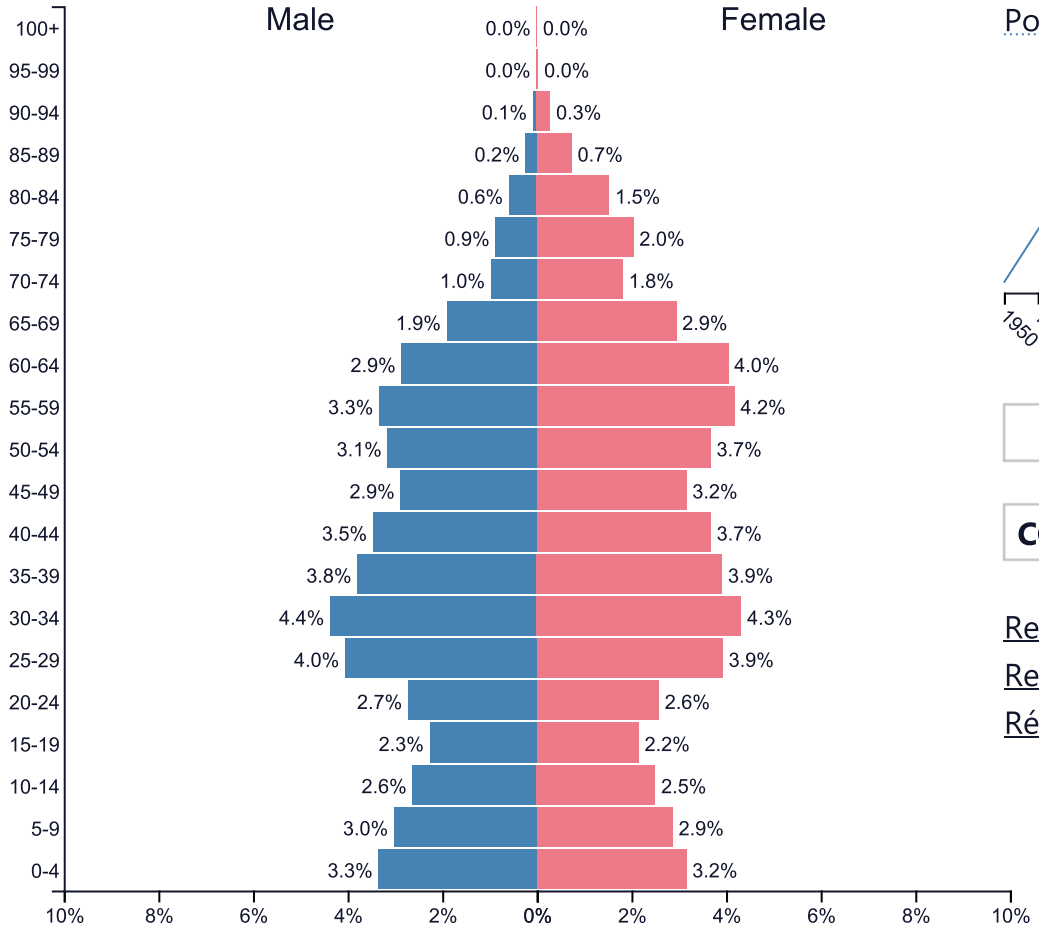
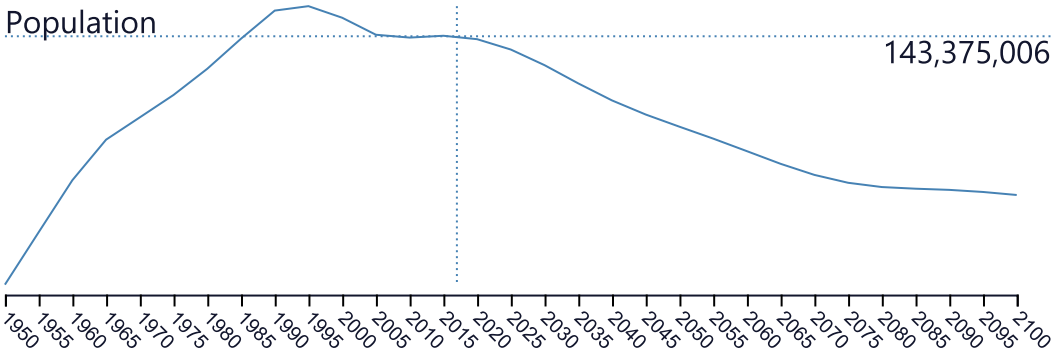
See also the number of migrants for this country.

Russian Federation

2017

Population: 143,375,006





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COUNTRY A B C D E F G H I J K L M N O P Q R S T U V W Y Z

Republic of Korea
Republic of Moldova
Réunion
Romania
Russian Federation
Rwanda

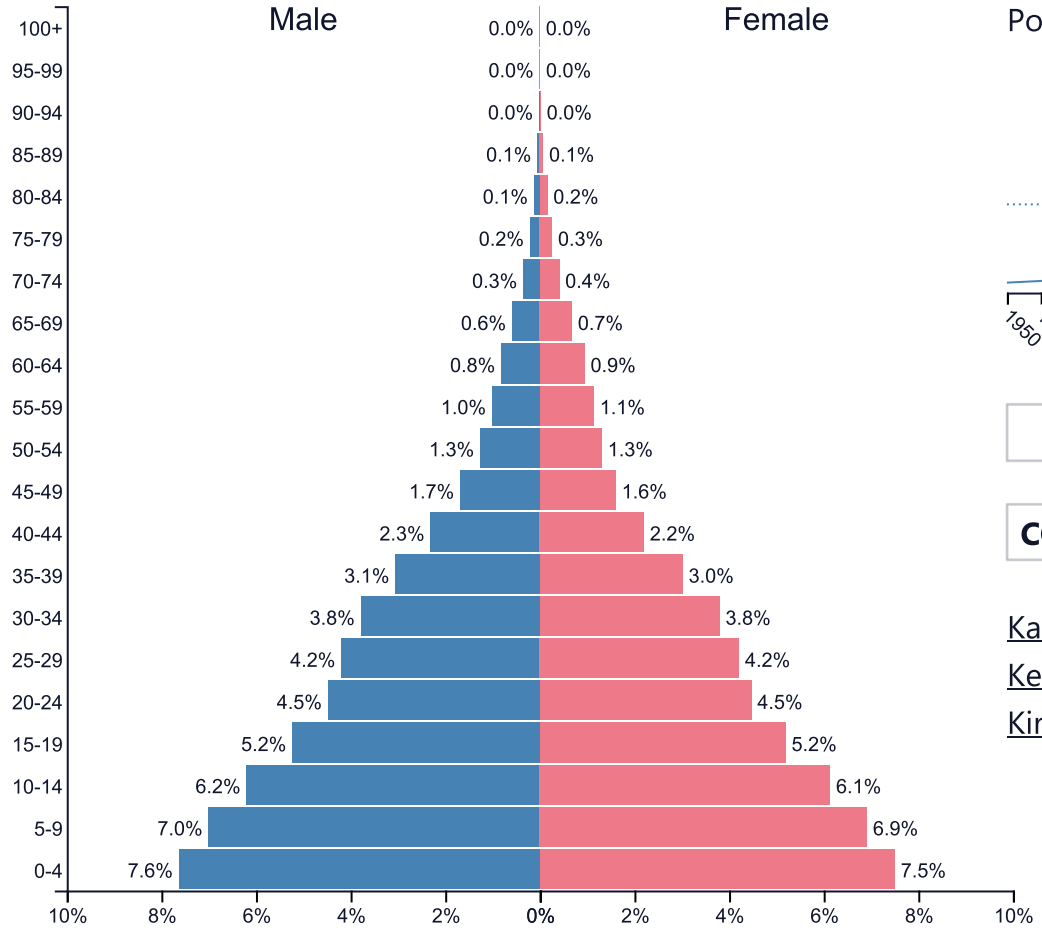
Download

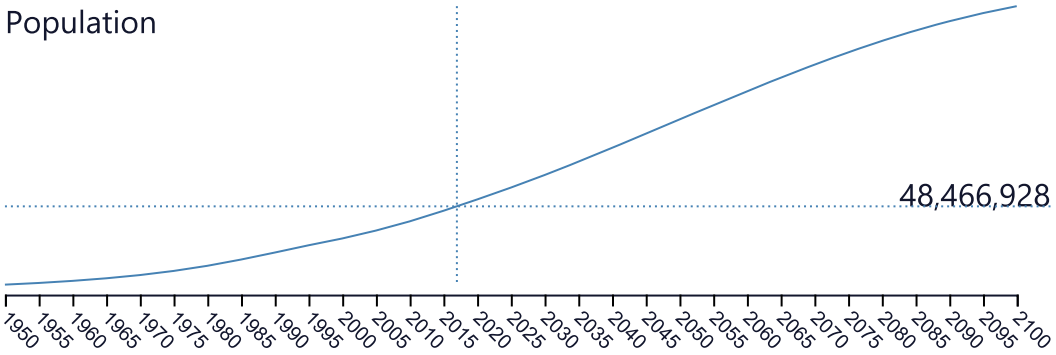
See also the number of migrants for this country.

Kenya

2017

Population: 48,466,927





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COUNTRY A B C D E F G H I J K L M N O P Q R S T U V W Y Z

Kazakhstan
Kenya
Kiribati
Kuwait
Kyrgyzstan

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See also the number of migrants for this country.

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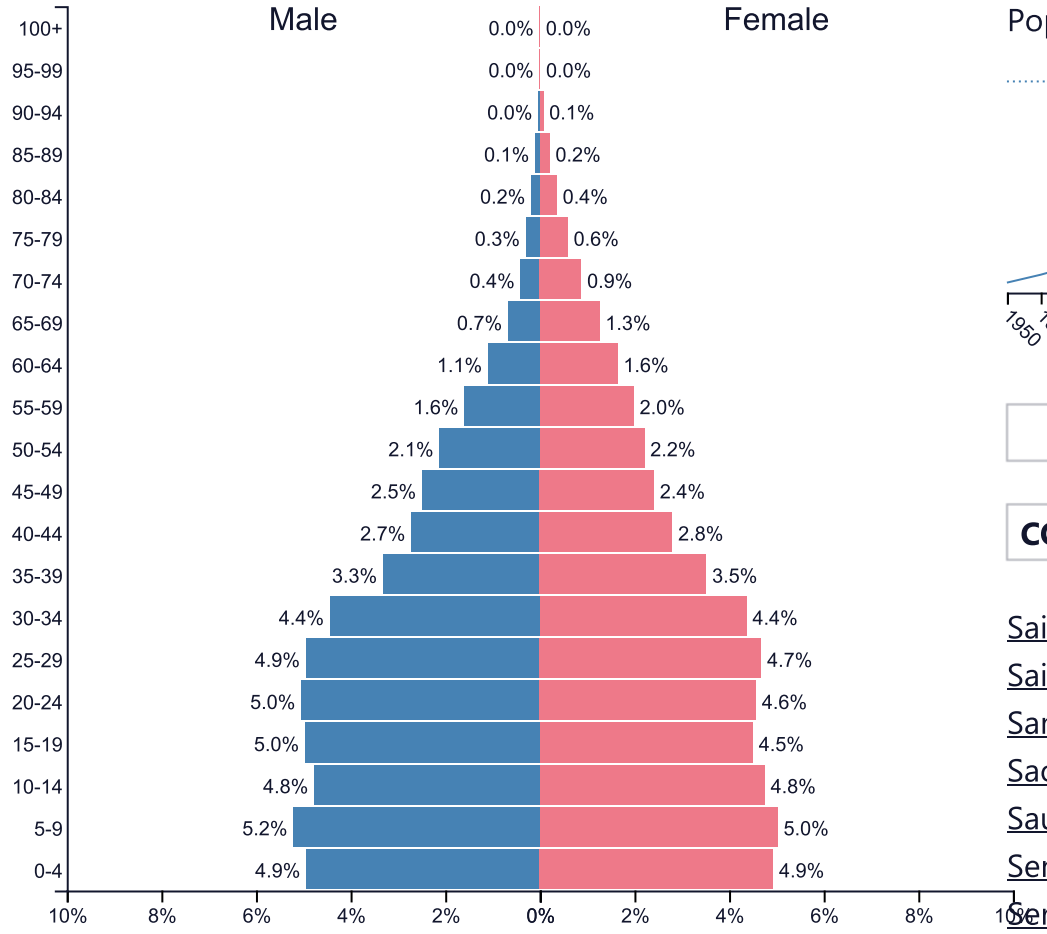
Southern Africa ▼

2017

Population: 63,854,425



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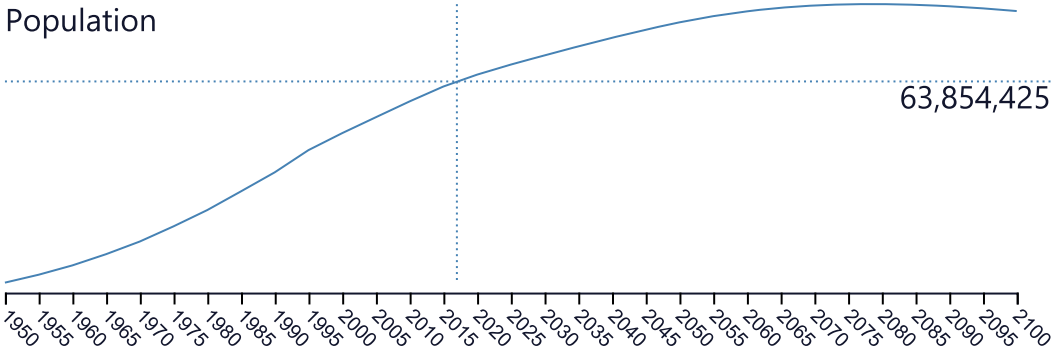

YEAR -5 -1 2017 +1 +5

COUNTRY A B C D E F G H I J K L M N O P Q R S T U V W Y Z

Saint Lucia
Saint Vincent and the Grenadines
Samoa
Sao Tome and Principe
Saudi Arabia
Senegal
Serbia
Seychelles
Sierra Leone
Singapore
South Sudan
South-Central Asia
South-Eastern Asia
Southern Africa
Southern Asia
Southern Europe
Spain
Sri Lanka
State of Palestine
Sub-Saharan Africa

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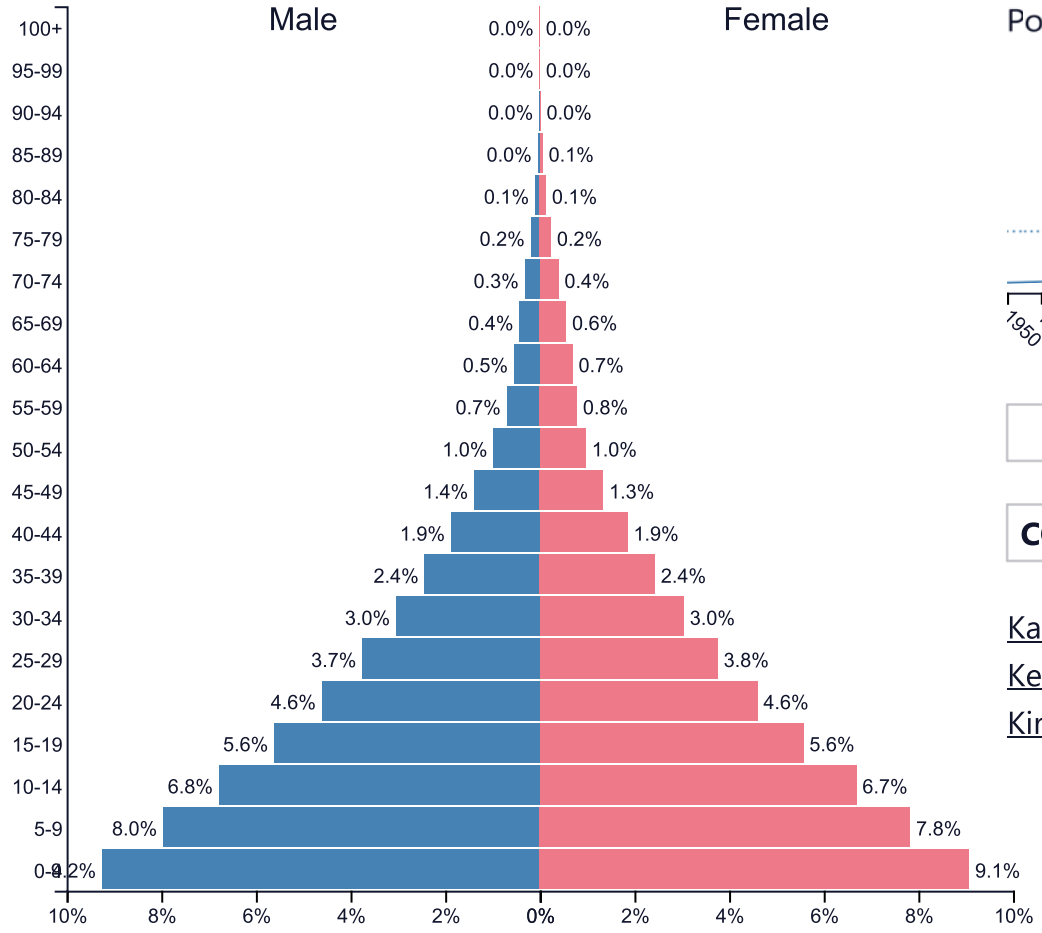
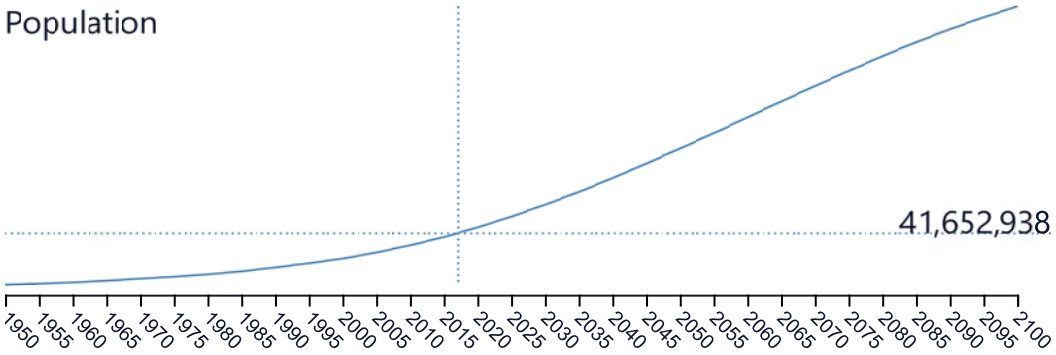
Uganda

2017

Population: 41,652,937





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COUNTRY A B C D E F G H I J K L M N O P Q R S T U V W Y Z

Kazakhstan
Kenya
Kiribati
Kuwait
Kyrgyzstan

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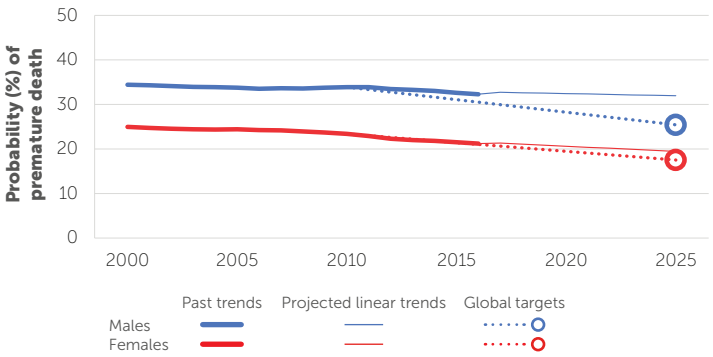
See also the number of migrants for this country.

SOUTH AFRICA

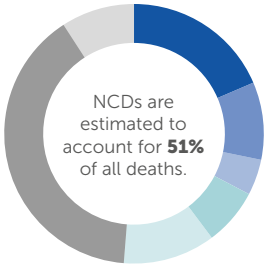
2016 TOTAL POPULATION: 56 015 000
2016 TOTAL DEATHS: 526 000

RISK OF PREMATURE DEATH DUE TO NCDS (%)*



PROPORTIONAL MORTALITY*

- 19% Cardiovascular diseases
- 11% Other NCDs
- 10% Cancers
- 40% Communicable, maternal, perinatal and nutritional conditions
- 4% Chronic respiratory diseases
- 9% Injuries
- 7% Diabetes

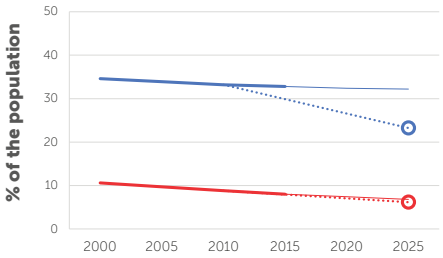


67 800 LIVES CAN BE SAVED BY 2025 BY IMPLEMENTING ALL OF THE WHO "BEST BUYS"

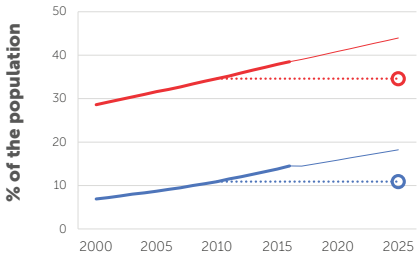
	NATIONAL TARGET SET		DATA YEAR	MALES	FEMALES	TOTAL
MORTALITY*						
Premature mortality from NCDs	✓	Total NCD deaths	2016	137 100	132 400	269 500
		Risk of premature death between 30-70 years (%)	2016	32	21	26
Suicide mortality	-	Suicide mortality rate (per 100 000 population)	2016	-	-	12
RISK FACTORS						
Harmful use of alcohol	✓	Total alcohol per capita consumption, adults aged 15+ (litres of pure alcohol)	2016	16	3	9
Physical inactivity	✓	Physical inactivity, adults aged 18+ (%)	2016	26	48	37
Salt/Sodium intake	✓	Mean population salt intake, adults aged 20+ (g/day)	2010	7	6	6
Tobacco use	✓	Current tobacco smoking, adults aged 15+ (%)	2016	33	8	20
Raised blood pressure	✓	Raised blood pressure, adults aged 18+ (%)	2015	24	24	24
Diabetes	X	Raised blood glucose, adults aged 18+ (%)	2014	8	12	10
Obesity	✓	Obesity, adults aged 18+ (%)	2016	15	39	27
		Obesity, adolescents aged 10-19 (%)	2016	9	13	11
Ambient air pollution	-	Exceedance of WHO guidelines level for annual PM2.5 concentration (proportion)	2016	-	-	2
Household air pollution	-	Population with primary reliance on polluting fuels and technologies (%)	2016	-	-	15

SELECTED ADULT RISK FACTOR TRENDS

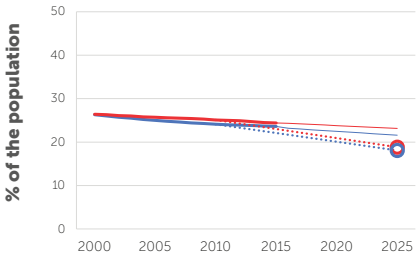
CURRENT TOBACCO SMOKING



OBESITY



RAISED BLOOD PRESSURE



NATIONAL SYSTEMS RESPONSE

Drug therapy to prevent heart attacks and strokes	X	Proportion of population at high risk for CVD or with existing CVD (%)	-	...
		Proportion of high risk persons receiving any drug therapy and counselling to prevent heart attacks and strokes (%)	-	...
		Proportion of primary health care centres reported as offering CVD risk stratification	2017	Don't know
		Reported having CVD guidelines that are utilized in at least 50% of health facilities	2017	No
Essential NCD medicines and basic technologies to treat major NCDs	✓	Number of essential NCD medicines reported as "generally available"	2017	10 out of 10
		Number of essential NCD technologies reported as "generally available"	2017	5 out of 6

... = no data available
* The mortality estimates for this country have a high degree of uncertainty because they are not based on any national NCD mortality data (see Explanatory Notes)

World Health Organization - Noncommunicable Diseases (NCD) Country Profiles, 2018.

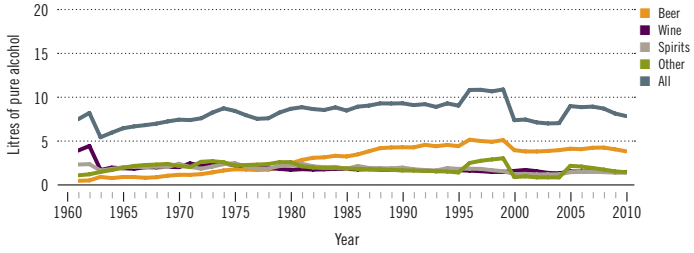
South Africa

Total population: 51 452 000 ➤ Population aged 15 years and older (15+): 70% ➤ Population in urban areas: 62% ➤ Income group (World Bank): Upper middle income

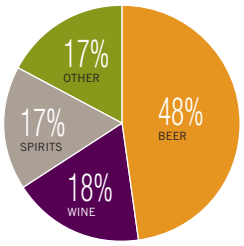
ALCOHOL CONSUMPTION: LEVELS AND PATTERNS

Recorded alcohol per capita (15+) consumption, 1961–2010

Data refer to litres of pure alcohol per capita (15+).



Recorded alcohol per capita (15+) consumption (in litres of pure alcohol) by type of alcoholic beverage, 2010



Alcohol per capita (15+) consumption (in litres of pure alcohol)

	Average 2003–2005	Average 2008–2010	Change
Recorded	7.6	8.2	→
Unrecorded	2.5	2.9	↗
Total	**10.1**	**11.0**	→
Total males / females		18.4 / 4.2	
WHO African Region	6.2	6.0	

Total alcohol per capita (15+) consumption, drinkers only (in litres of pure alcohol), 2010

Males (15+)	32.8
Females (15+)	16.0
Both sexes (15+)	27.1

Prevalence of heavy episodic drinking* (%), 2010

	Population	Drinkers only
Males (15+)	17.8	31.7
Females (15+)	3.7	13.9
Both sexes (15+)	10.4	25.6

*Consumed at least 60 grams or more of pure alcohol on at least one occasion in the past 30 days.

Abstainers (%), 2010

	Males	Females	Both sexes
Lifetime abstainers (15+)	28.0	54.9	42.0
Former drinkers* (15+)	15.8	18.7	17.3
Abstainers (15+), past 12 months	43.7	73.7	59.4

*Persons who used to drink alcoholic beverages but have not done so in the past 12 months.

Patterns of drinking score, 2010

LEAST RISKY < 1 2 3 **4** 5 > MOST RISKY

HEALTH CONSEQUENCES: MORTALITY AND MORBIDITY

Age-standardized death rates (ASDR) and alcohol-attributable fractions (AAF), 2012

	ASDR*		AAF (%)	
Liver cirrhosis, males / females	25.2	8.9	68.4	59.6
Road traffic accidents, males / females	47.7	16.2	52.2	11.6

*Per 100 000 population (15+).

Years of life lost (YLL) score*, 2012

LEAST < 1 2 3 **4** 5 > MOST

*Based on alcohol-attributable years of life lost.

Prevalence of alcohol use disorders and alcohol dependence (%), 2010*

	Alcohol use disorders**	Alcohol dependence
Males	10.0	4.2
Females	1.5	0.7
Both sexes	5.6	2.4
WHO African Region	3.3	1.4

*12-month prevalence estimates (15+).
**Including alcohol dependence and harmful use of alcohol.

POLICIES AND INTERVENTIONS

Written national policy (adopted/revised) / National action plan	Yes (1999/2007) / Yes
Excise tax on beer / wine / spirits	Yes / Yes / Yes
National legal minimum age for off-premise sales of alcoholic beverages (beer / wine / spirits)	18 / 18 / 18
National legal minimum age for on-premise sales of alcoholic beverages (beer / wine / spirits)	18 / 18 / 18
Restrictions for on-/off-premise sales of alcoholic beverages:	
Hours, days / places, density	Yes, No / Yes, No
Specific events / intoxicated persons / petrol stations	No / Yes / No

National maximum legal blood alcohol concentration (BAC) when driving a vehicle (general / young / professional), in %	0.05 / 0.05 / 0.05
Legally binding regulations on alcohol advertising / product placement	No / No
Legally binding regulations on alcohol sponsorship / sales promotion	No / No
Legally required health warning labels on alcohol advertisements / containers	No / Yes
National government support for community action	No
National monitoring system(s)	Yes

South Africa: WHO statistical profile

Basic statistics

Indicators	Statistics	Year
Population (thousands)	52776	2013
Population aged under 15 (%)	30	2013
Population aged over 60 (%)	9	2013
Median age (years)	26	2013
Population living in urban areas (%)	64	2013
Total fertility rate (per woman)	2.4	2013
Number of live births (thousands)	1098.8	2013
Number of deaths (thousands)	586.1	2013
Birth registration coverage (%)	85	2012
Cause-of-death registration coverage (%)	91	2008-2010
Gross national income per capita (PPP int $)	12240	2013
WHO region	African	2013
World Bank income classification	Upper middle	2013

Source:
Country statistics and global health estimates
by WHO and UN partners

For more information visit the Global Health Observatory
(http://www.who.int/gho/en/)

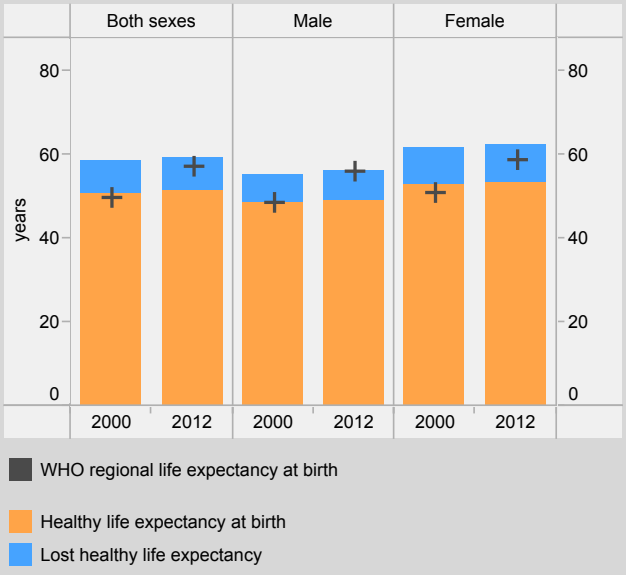
Last updated: January 2015

Life expectancy (years), 2012

		Country	WHO region	World Bank income group
Life expectancy	At birth	59	58	74
	At age 60	16	17	20
Healthy life expectancy	At birth	51	50	66

Life expectancy at birth for both sexes increased by 1 year(s) over the period of 2000-2012; the WHO region average increased by 7 year(s) in the same period.

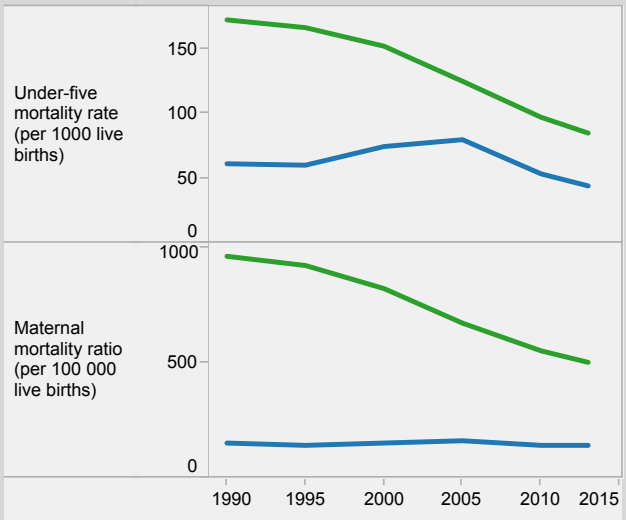
In 2012, healthy expectancy in both sexes was 8 year(s) lower than overall life expectancy at birth. This lost healthy life expetancy represents 8 equivalent year(s) of full health lost through years lived with morbidity and disability.



Millennium Development Goals (MDGs)

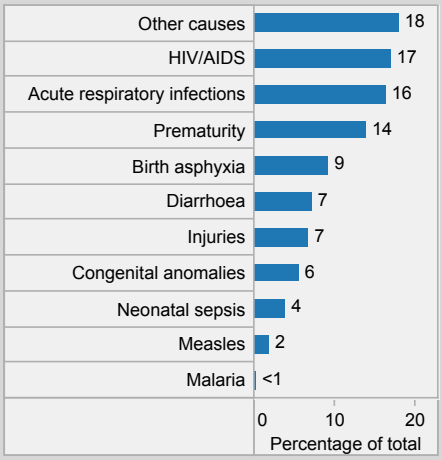
Indicators	Statistics	
	Baseline*	Latest**
Under-five mortality rate (per 1000 live births)	61	44
Maternal mortality ratio (per 100 000 live births)	150	140
Deaths due to HIV/AIDS (per 100 000 population)	322.2	385.9
Deaths due to malaria (per 100 000 population)	0.5	0.1
Deaths due to tuberculosis among HIV-negative people (per 100 000 population)	55	48

*1990 for under-five mortality and maternal mortality; 2000 for other indicators
**2012 for deaths due to HIV/AIDS and malaria ; 2013 for other indicators

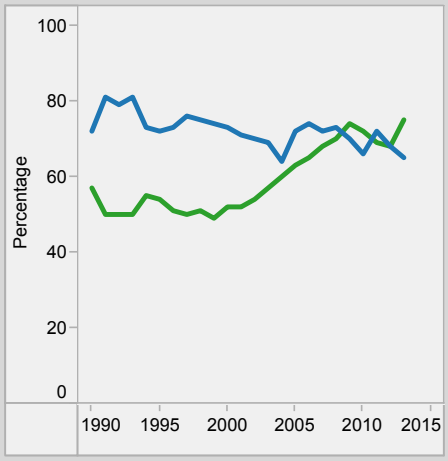


South Africa: WHO statistical profile

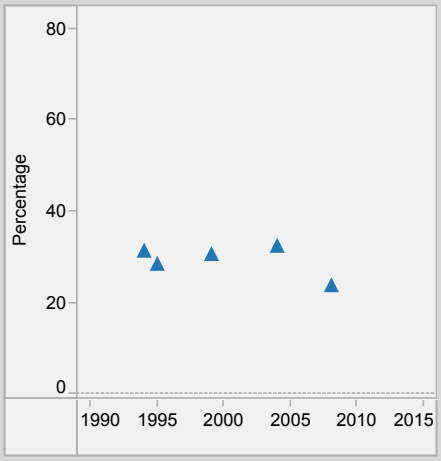
Distribution of causes of deaths in children under-5, 2013



DTP3 immunization among 1-year-olds



Children aged under-5 stunted

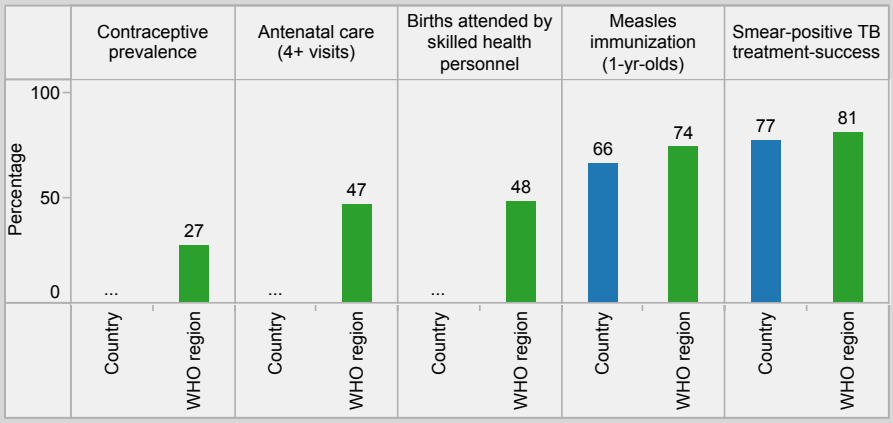


Country
WHO region

Source: Country statistics and global health estimates by WHO and UN partners
For more information visit the Global Health Observatory (http://www.who.int/gho/en//)
Last updated: January 2015

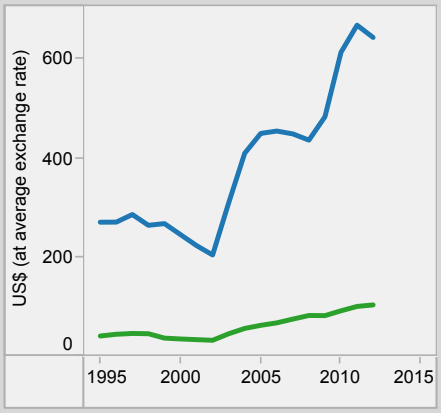
Utilisation of health services*

*Data refer to the latest year available from 2007.

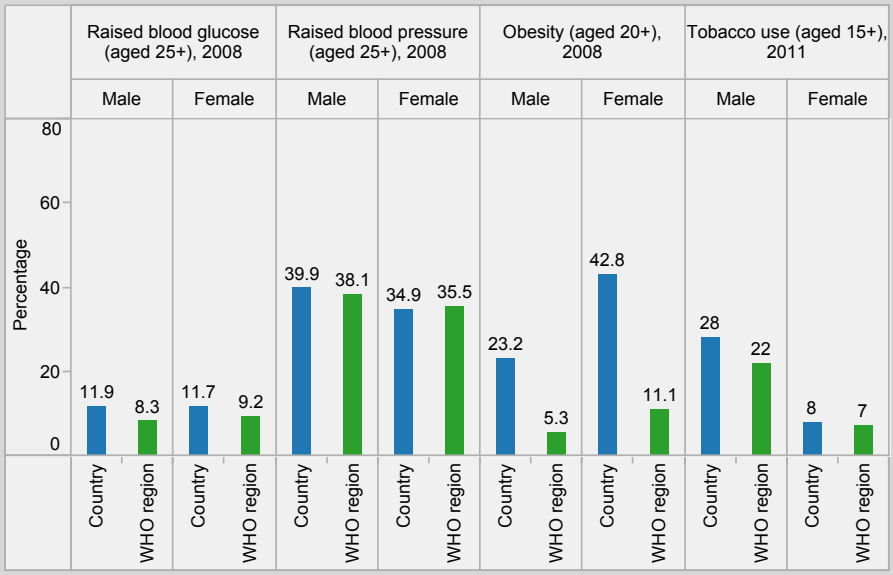


... Data not available or applicable.

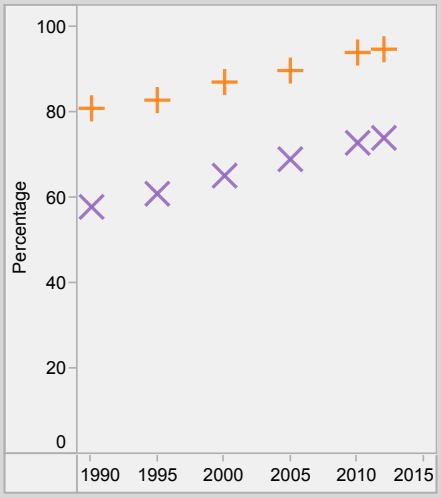
Per capita total expenditure on health



Adult risk factors



Population using improved water and sanitation

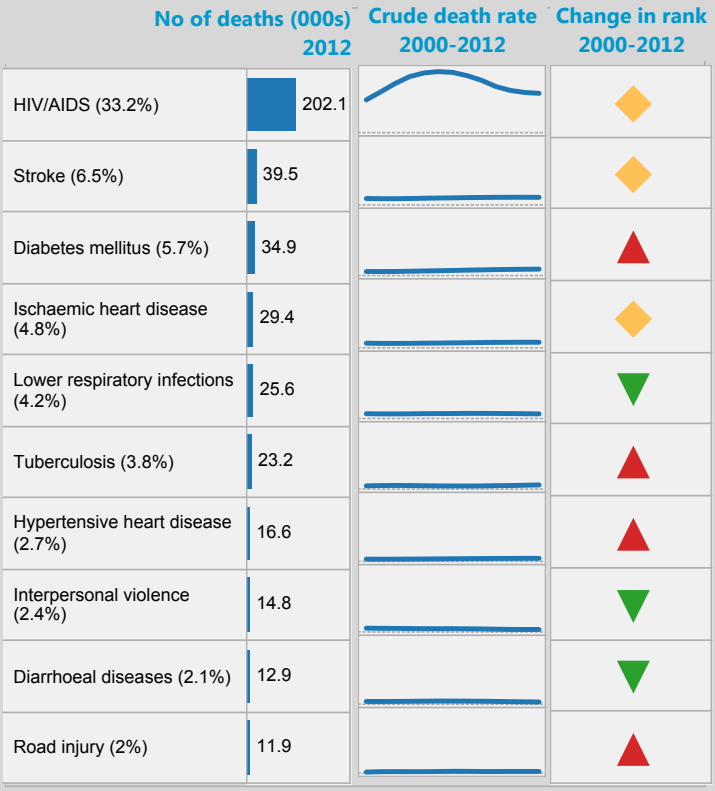


+ Improved drinking-water sources
× Improved sanitation facilities

South Africa: WHO statistical profile

Top 10 causes of death

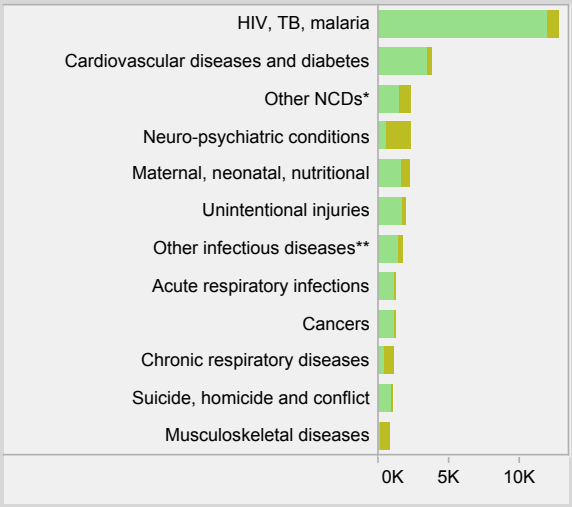
HIV/AIDS was the leading cause of death, killing 202.1 thousand people in 2012



Burden of disease, 2012

Disability-adjusted life years (DALYs) are the sum of years of life lost due to premature mortality (YLL) and years of healthy life lost due to disability (YLD).

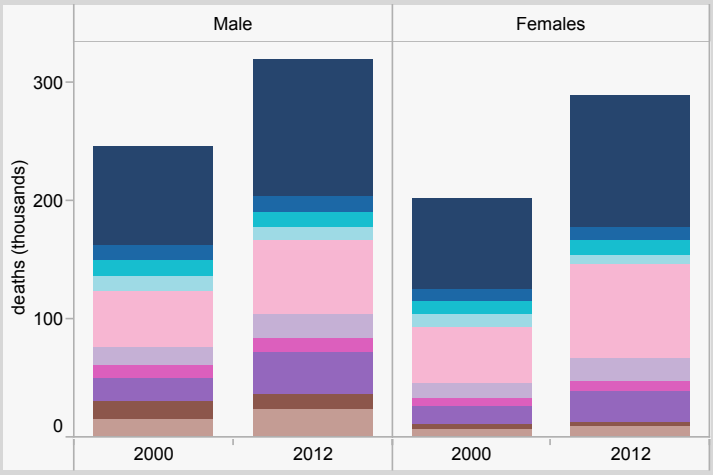
DALYs, YLL and YLD (thousands) by broad cause group



*Other noncommunicable diseases (NCDs) including non-malignant neoplasms; endocrine, blood and immune disorders; sense organ, digestive, genitourinary, and skin diseases; oral conditions; and congenital anomalies.

** Infectious diseases other than acute respiratory diseases, HIV, TB and malaria.

Deaths by broad cause group



Causes

- HIV, TB, malaria
- Acute respiratory infections
- Other infectious diseases
- Maternal, neonatal, nutritional
- Cardiovascular diseases and diabetes
- Cancers
- Chronic respiratory diseases
- Other NCDs
- Suicide, homicide and conflict
- Unintentional injuries

Probability of dying, 2012

Probability of dying between relevant exact ages, for a person experiencing the 2012 age-specific mortality risks throughout their life.

Before age 15, all causes	Male	19%
	Female	15%
Before age 70, all causes	Male	83%
	Female	65%
Between ages 15 and 49, from maternal causes	Female	4%
Between ages 30 and 70, from 4 major noncommunicable diseases (NCDs)~	Both sexes	27%

~Cancers, cardiovascular diseases, chronic respiratory diseases and diabetes

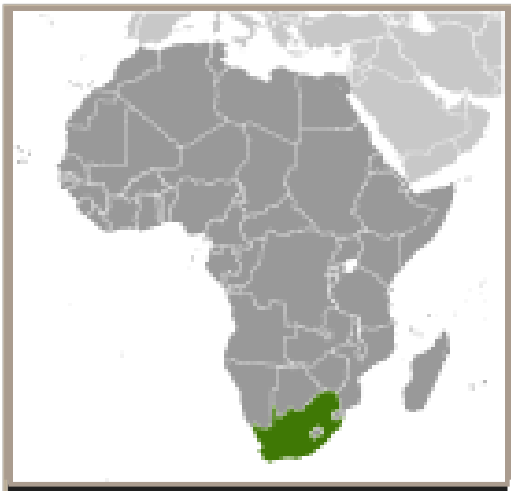
Source: Country statistics and global health estimates by WHO and UN partners

For more information visit the Global Health Observatory (http://who.int/gho/mortality_burden_disease/en/)

Last updated: January 2015

CDC in South Africa

Factsheet



Staffing
17 U.S. Assignees
58 Locally Employed

Impact in South Africa

- 4,200 PMTCT sites offer provider initiated HIV counseling and testing and antiretroviral therapy to HIV-infected patients
- Trained more than 2,000 nurses and clinicians to provide integrated HIV and TB screening and treatment in primary health facilities
- Supported the South African National AIDS Council in assuming leadership for Global Fund activities and monitoring the objectives of the National Strategic Plan

"I am responsible…We are responsible… South Africa is taking responsibility." is the core slogan of a massive nationwide HIV counseling and testing campaign.

The Centers for Disease Control and Prevention (CDC) started work in South Africa in 1989, assisting non-governmental and community-based organizations working with HIV. In 1994 at the onset of democracy in South Africa, CDC began to collaborate with the South African National Department of Health to conduct public health epidemiology training; develop national health goals and objectives; develop national HIV clinical, ethical, and research guidelines; and support HIV and Tuberculosis (TB) programs. CDC plays an essential role in implementing the President's Emergency Plan for AIDS Relief (PEPFAR).

Top 10 Causes of Deaths in South Africa

1. HIV/AIDS	52 %	6. Tuberculosis	3%
2. Cerebrovascular disease	5%	7. Diarrheal disease	2%
3. Ischaemic heart disease	4 %	8. Road traffic accidents	2%
4. Lower respiratory infections	4%	9. Diabetes mellitus	2%
5. Violence	3%	10. Chronic obstructive pulmonary disease	1%

Source: WHO World Health Statistics, 2006

HIV/AIDS

In December 2010, US Secretary of State Hillary Clinton and the South African Minister of International Relations and Cooperation Maite Nkoana-Mashabane signed a Partnership Framework to codify PEPFAR's continued support. Under the Framework and working with more than 55 partners, CDC focuses on the following areas in South Africa:

- **Strengthening Health Systems**
  CDC aims to maximize the health impact and host country system efficiencies on the ground. Public health experts from CDC help to identify problems and support the implementation and documentation of solutions that save lives and money. The South African National Health Laboratory Service is supported in delivering effective service to all South Africans. CDC also supports partners to design and implement surveillance systems and surveys and to develop systems to monitor and evaluate HIV and TB prevention, care, and treatment programs. Health management information systems staff work with the host government to develop, implement, and maintain unified health information systems. The African Centre for Integrated Lab Training develops and presents hands-on training courses for front-line laboratory staff from several countries in sub-Saharan Africa, Asia, and the Caribbean.
- **Prevention**
  CDC supports HIV prevention with a comprehensive approach including biomedical and behavior change strategies. Pillars of the program are rapid expansion of medical male circumcision, preventing mother-to-child transmission of HIV (PMTC), and integrating HIV and sexually transmitted infections programs. Evidence-based strategies ensure favorable health outcomes with sustainable effects on policy and health systems. The counseling and testing program supports a national campaign that aims to test 15 million people.

Simple infection control procedures like reminders to open windows and doors at the right time help prevent new infections in public TB facilities.

South Africa at a Glance

Population:	50,460,000
Per capita income:	$10,050
Life expectancy at birth women/men:	54/53 yrs
Infant mortality:	48/1000 live births

Population Reference Bureau World Population Data Sheet, 2011

Laboratories are the cornerstone of any good health system. The National Health Laboratory Service, a CDC-supported partner, provides world-class services.

- **Care and Treatment**
  CDC supports the government in providing HIV care and treatment services. CDC supported 356,711 people on antiretroviral treatment (ART), contributing to increased life expectancy and improvements in the quality of life for people living with and affected by HIV. The care and treatment branch underscores the work of the South African government by scaling-up services for ART and by expanding and improving care and support programs for those infected and affected by HIV.
- **Integrating TB and HIV**
  With one of the world's highest TB infection and drug-resistant rates and more than 70% of TB patients co-infected with HIV, intensifying TB case finding and integrating TB and HIV services has been a critical component of the HIV/AIDS program. The program works closely with national and provincial health departments and partners to implement Directly Observed Therapy (DOTS) strategy, to integrate TB and HIV, and to strengthen infection control. Surveillance for TB and drug-resistant TB has been enhanced by CDC-supported electronic software.

Global Disease Detection (GDD)

A relative newcomer to South Africa, GDD established a regional center in July 2010. The South Africa GDD Regional Center is one of seven located around the world that coordinate with local, regional, and global public health entities to rapidly detect, accurately identify, and promptly contain emerging infectious disease threats. The South Africa regional center consists of the two programs described below.

Field Epidemiology and Laboratory Training Program (FELTP)

The two-year South African Field Epidemiology and Laboratory Training Program, based in the National Institute of Communicable Diseases, which is part of the National Health Laboratory Service managed by the University of Pretoria and CDC, trains public health leaders, provides epidemiologic services to health authorities such as evaluations of vaccination campaigns, and has conducted more than 20 outbreak investigations to limit the spread of illness. Additionally, the FELTP offers an applied field epidemiology short course aimed at strengthening epidemiological capacity in all levels of the South African health services system to better detect and prevent disease.

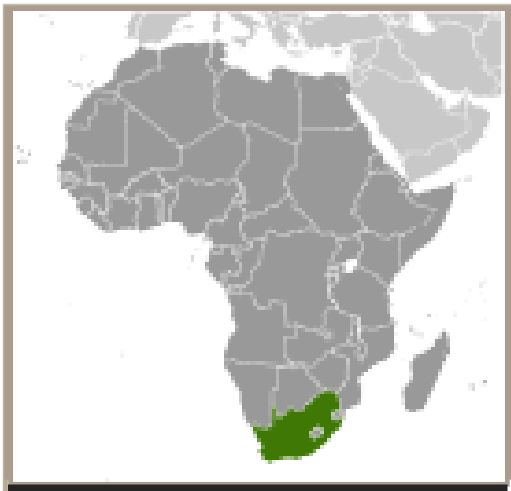
Influenza

CDC collaborates with the National Institute of Communicable Diseases/National Health Laboratory Service to strengthen laboratory and epidemiologic capacity of national health authorities for the detection, surveillance, and response to seasonal, pandemic, and zoonotic influenza in South Africa and selected countries of the Southern Africa Development Community. CDC sponsors a laboratory management training course for influenza laboratories and a data management training course for influenza surveillance data managers and epidemiologists. Surveillance for influenza has provided a platform to explore the role of other viral respiratory pathogens in causing pneumonia in South Africa. Robust estimates of influenza burden in specific populations (e.g. HIV-infected) have provided evidence for policy improvements on the use of the influenza vaccine in targeted groups. Strengthening pandemic preparedness and response capacity at the local level provides a platform for improved preparedness and response for other communicable diseases.

Publication Date: April 2012

For more information please contact Centers for Disease Control and Prevention:

CDC-Atlanta
1600 Clifton Road NE, Atlanta, GA 30333
Email: cgh@cdc.gov
Web: www.cdc.gov/global



CDC in South Africa

Factsheet

The Centers for Disease Control and Prevention (CDC) started work in South Africa in 1989, assisting non-governmental and community-based organizations working with HIV/AIDS. In 1994 at the onset of democracy in South Africa, CDC began to collaborate with the Ministry of Health's (MoH) National Department of Health to conduct public health epidemiology training; develop national health goals and objectives; develop national HIV clinical, ethical, and research guidelines; and support HIV/AIDS and tuberculosis (TB) programs. CDC plays an essential role in implementing the U.S. President's Emergency Plan for AIDS Relief (PEPFAR).

Staffing
15 U.S. Assignees
57 Locally Employed

Top 10 Causes of Deaths in South Africa

6.	HIV/AIDS	52 %	6.	Tuberculosis	3%
7.	Cerebrovascular disease	5%	7.	Diarrheal disease	2%
8.	Ischaemic heart disease	4 %	8.	Road traffic accidents	2%
9.	Lower respiratory infections	4%	9.	Diabetes mellitus	2%
10.	Violence	3%	10.	Chronic obstructive pulmonary disease	1%

Source: WHO World Health Statistics, 2006

Impact in South Africa

In 2012, CDC . . .

- Directly supported the provision of antiretroviral drugs to 112,241 HIV-positive pregnant women to prevent mother-to-child transmission.
- Directly supported the provision of antiretroviral treatment to 622,866 men, women and children (as of September).
- Directly supported 80,701 voluntary medical male circumcisions.
- Supported South Africa to organize and implement a national influenza vaccination campaign.
- Provided support and technical expertise in the expansion of antenatal surveillance from 13 to 20 sentinel sites.

HIV/AIDS

Through PEPFAR, the CDC South Africa office supports the MoH through HIV treatment services and a comprehensive combination prevention strategy. Using a data-driven approach, this strategy is tailored to the unique characteristics of the local epidemic to boost health impact. Activities include the expansion of prevention services including the prevention of mother-to-child transmission (PMTCT), antiretroviral therapy, and voluntary medical male circumcision (VMMC).

VMMC is a key area of focus and the MoH has committed to working toward 80 percent coverage of all South African men by 2015. CDC's VMMC expansion activities include the establishment of service sites; surgical training and quality control; and mobilizing men to volunteer for circumcision.

Other key activities include improving and expanding HIV counseling and testing services, TB/HIV integrated service delivery, early infant diagnosis, laboratory infrastructure development, and strengthening health systems. Health system strengthening includes building country capacity in the areas of workforce development, high quality laboratory networks, epidemiology, surveillance, health information systems, and program monitoring and evaluation to assess impact and make rapid course corrections to keep pace with changes in the local epidemic.

South Africa at a Glance

Population:	51,147,000
Per capita income:	$10,360
Life expectancy at birth women/men:	54/55 yrs
Infant mortality:	38/1000 live births

Population Reference Bureau Fact Sheet, 2012

Global Disease Detection (GDD)

The Southern African Global Disease Detection Regional Center (SARGDDC) was established in 2010 in coordination with country partners. The tenth GDD center in the world, it provides leadership, training, and technical assistance to strengthen regional ability to confront new emerging infectious disease challenges, including influenza and other respiratory diseases.

The GDD portfolio encompasses the International Emerging Infections Program (IEIP), focused on identification and control of emerging infectious disease threats; the Influenza Program, conducting surveillance for influenza and pneumonia to direct influenza policy and pandemic preparedness; and the South African Field Epidemiology and Laboratory Training Program (FELTP), a two-year epidemiological training program.

Field Epidemiology and Laboratory Training Program (FELTP)

FELTP is part of the National Institute of Communicable Diseases and managed by the University of Pretoria and CDC. The program trains public health leaders to provide epidemiologic services to health authorities such as evaluations of vaccination campaigns. To date, residents have conducted more than 20 outbreak investigations to limit the spread of illness. Additionally, FELTP offers an applied field epidemiology short course aimed at strengthening epidemiological capacity in all levels of the South African health services system to better detect and prevent disease.

Influenza

The National Influenza Center (NIC) at the National Institute for Communicable Diseases (NICD) leads the Influenza Surveillance Programme in South Africa and has both a national and regional focus, especially in the Southern African Development Community (SADC). The cooperative agreement Preparedness and Response to Avian and Pandemic Influenza in South Africa between the CDC and the NICD at the National Health Laboratory Services (NHLS) began in August 2007. This agreement supports activities that strengthen the capacity of national health authorities for surveillance of severe acute respiratory infection (SARI) and influenza-like illness (ILI). It also facilitates training and capacity building among the health authorities in selected countries of the SADC for the diagnosis of influenza.

In 2011, a new cooperative agreement Sustaining Surveillance Networks and Response to Seasonal and Pandemic Influenza in South Africa was awarded for a five-year period. The key objectives of this agreement are (1) to optimize and consolidate the ILI and SARI surveillance systems and generate robust data while working toward downscaling SARI surveillance to ensure long-term sustainability, (2) to consolidate the laboratory capacity so as to serve as a national and regional influenza reference center, and (3) to establish additional technology and infrastructure required to obtain H5 reference center status.

Publication Date: June 2013

For more information please contact Centers for Disease Control and Prevention:

CDC-Atlanta
1600 Clifton Road NE, Atlanta, GA 30333
Email: cgh@cdc.gov
Web: www.cdc.gov/global

CDC in South Africa

The Centers for Disease Control and Prevention (CDC) began working in South Africa in 1989, assisting nongovernmental and community-based organizations working to combat HIV. In 1994, at the onset of democracy in South Africa, CDC began to collaborate with the South African National Department of Health (NDOH) to conduct public health epidemiology training; develop national health goals and objectives; develop national HIV clinical, ethical, and research guidelines; and support HIV and tuberculosis (TB) programs. CDC plays an essential role in implementing the U.S. President's Emergency Plan for AIDS Relief (PEPFAR).

CDC STAFF

18 U.S. Assignees
57 Locally Employed

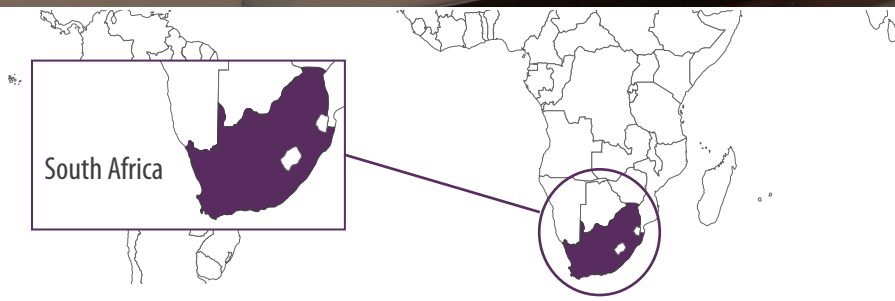
AT A GLANCE

Population: 55,700,000
Per capita income: $12,830
Life expectancy at birth: W 64/M 60 yrs
Infant mortality rate: 34/1000 live births

TOP 10 CAUSES OF DEATH

1. TB
2. Diabetes
3. Cerebrovascular Diseases
4. Other forms of Heart Disease
5. HIV
6. Influenza & Pneumonia
7. Hypertensive Diseases
8. Other viral diseases
9. Chronic Lower Respiratory Diseases
10. Ischaemic Health Disease

Source: Population Reference Bureau 2015: South Africa
Source: http://www.statssa.gov.za/



HIV/AIDS

Through PEPFAR, the CDC South Africa office supports the NDOH through HIV treatment services and a comprehensive combination prevention strategy. Using a data-driven approach, this strategy is tailored to the unique characteristics of the local epidemic to boost health impact. Activities include the expansion of prevention services, including the prevention of mother-to-child transmission (PMTCT) of HIV, antiretroviral therapy (ART), and voluntary medical male circumcision (VMMC).

The South Africa ART program surpassed their goal of 3.5 million persons currently on ART, with a total of 3.614 million people living with HIV (PLHIV) on treatment as of September 2016. CDC-supported healthcare facilities provide treatment for more than 1.3 million of these PLHIV.

Adolescent girls (15-19 years) are up to eight times more likely to be HIV- infected, while young women (20-24 years) are more than three times more likely to be infected than their male peers; as a result, adolescent girls and young women (AGYW) are a key focus area for CDC South Africa. Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe (DREAMS) is a partnership to reduce HIV/AIDS in AGYW. CDC South Africa is an implementing agency of this partnership, which is a comprehensive package of services for vulnerable AGYW in five geographical districts, directed at ensuring they become DREAMS AGYW.

Centers for Disease Control and Prevention
Center for Global Health

Other key activities include improving and expanding HIV counseling and testing services, TB/HIV integrated service delivery, early infant diagnosis, laboratory infrastructure development, and strengthening healthcare systems. Healthcare system strengthening includes building country capacity in the areas of workforce development, high-quality laboratory networks, epidemiology, surveillance, healthcare information systems, and program monitoring and evaluation to assess impact and to make rapid course corrections to keep pace with changes in the local epidemic.

Global Disease Detection

The Global Disease Detection (GDD) program is CDC's principal program for developing and strengthening global health security to prevent, detect, and respond to emerging infectious disease and bioterrorist threats globally. In 2010, GDD South Africa became the eighth regional GDD center. The regional center provides leadership, training, and technical assistance to confront new emerging health disease challenges. A large focus of the program is on enhancing capacity to detect and respond to emerging and zoonotic disease threats through strengthening surveillance and public health research, and the collaboration between the human and veterinary healthcare providers in South Africa.

The Influenza Program

CDC has supported South Africa since 2007, working nationally and regionally to improve the quality of influenza surveillance in South Africa. The program provides technical expertise and financial resources to support national pneumonia and influenza-like illness surveillance, pandemic preparedness, applied research, and influenza vaccine policy development in South Africa. CDC works closely with the National Institute for Communicable Diseases to implement policy-relevant applied research, including a study of maternal influenza vaccine effectiveness, mortality modeling studies, and influenza virus transmission studies.

The Field Epidemiology Training Program (FETP)

Launched in 2006, FETP is a collaboration between the NDOH, South Africa's National Institute for Communicable Diseases, the University of Pretoria, and CDC. FETP is a 2-year training program in applied epidemiology focused on supervised work experience and training to develop practical public health skills and knowledge. Residents participate in several core modules and then work with a field supervisor at a national, provincial, district, or academic field placement site, developing competency in outbreak investigations, public health surveillance, scientific communication, and hypothesis-driven epidemiology research.

For more country information
www.cdc.gov/globalhealth/countries/southafrica

IMPACT IN SOUTH AFRICA

South Africa was one of the first countries in Africa to adopt the Test and Treat policy in September 2017 making treatment available to all people living with HIV regardless of CD4 count, .

CDC South Africa's laboratory program has implemented a quality improvement system within 1,159 facilities providing HIV-rapid testing within the 27 focus districts in the country. The first cycle of proficiency testing has seen a passing rate of 97% for all facilities enrolled.

More than 95% of TB patients at CDC-supported facilities were tested for HIV, and of those co-infected with HIV, 85% were initiated on ART.

For more information please contact

Centers for Disease Control and Prevention CDC - Atlanta
1600 Clifton Road NE, Atlanta, GA 30333
www.cdc.gov/global
Email: cdcglobal@cdc.gov

Publication Date September 2017 CS274103

جدیدترین اطلاعات "سازمان بهداشت جهانی وابسته به سازمان ملل متحد" در خصوص بیماریهای غیر واگیر[۲]

World Health Organization (WHO) & ESRD

نکات کلیدی:

- بیماری های غیر واگیر، علت مرگ ۳۸ میلیون نفر در هر سال در جهان هستند.
- تقریبا سه چهارم مرگ و میر ناشی از بیماری های غیر واگیر (۲۸ میلیون نفر) در کشورهای کم درآمد و با درآمد متوسط رخ می دهد.
- شانزده میلیون مرگ و میر ناشی از بیماری های غیر واگیر قبل از سن ۷۰ رخ می دهد؛
- ۸۲ درصد از این مرگ و میرهای «زودهنگام» در کشورهای کم درآمد و با درآمد متوسط رخ داده است.
- بیماری های قلبی عروقی، بیشترین عامل مرگ و میر در میان مرگهای ناشی از بیماری های غیر واگیر (۱۷/۵ میلیون نفر در سال معادل ۴۶% از کل)، بوده است
- پس از آن سرطان (۸/۲ میلیون معادل ۲۱/۶% از کل)،
- بیماری های تنفسی (۴ میلیون معادل ۱۰/۵% از کل)،
- **و دیابت (۱/۵ میلیون نفر معادل ۳/۹۵% از کل)**.

بولتن سال ۲۰۰۸ سازمان بهداشت جهاني وابسته به سازمان ملل متحد[۳]

- اشائه بیماری های مزمن کلیه (Chronic Kidney Disease/CKD) و مرحله نهایی بیماری کلیه End-Stage Kidney Disease/ESRD در کشورهای کم درآمد و کشورهای با درآمد متوسط (Low- and Middle-Income Countries /LMIC) به میزان چشمگیری افزایش یافته است.

- بر اساس بولتن سال ۲۰۰۸ سازمان بهداشت جهاني وابسته به سازمان ملل متحد تعداد بیماران ESKD در جهان که تحت درمان RRT هستند؛ حدود یک میلیون و چهارصد هزار (۱،۴۰۰،۰۰۰) نفر برآورد و از سوي ديگربيماران جديد ESKD در جهان با نرخ سالانه در حدود 8% در حال افزايش مي باشند وبا ادامه اين روند تقريبا هر ده (۱۰) سال تعداد بيماران ESRD دو برابر مي گردد. عوامل اصلی / ریسک فاکتورهای کلیدی در اشائه CKD عبارتند از؛ پیری جمعیت، همه گیری جهانی دیابت نوع ۲ (Diabetes Mellitus/DM) , و فشار خون بالا است.

- میزان شیوع و علل ESKD در کشورهای کم درآمد و کشورهای با درآمد متوسط (LMIC) بعلت ضعف و یا نبود سامانه ها و روشهای جمع آوری ثبت اطلاعات در این کشورها، برآورد میزان شیوع ESKD در کشورهای LMIC دشوار است. با این حال میزان شیوع میتواند مشابه کشورهای پر درآمد High Income Countries/ HIC باشد. درحال حاضر نفروپاتی دیابتی نه تنها در استرالیا، اروپا و آمریکای شمالی علت اصلی ESKD است، بلکه در کشورهای کم درآمدتر از جمله هند، چندین کشور آمریکای لاتین، مالزی و ترکیه نیز علت اصلی ESKD است. دیابت در میان ۲۵٪ از جمعیت ۲۵ تا ۴۰ سال مکزیک شایع است و در پورتو ریکو، نفروپاتی دیابتی عامل ۶۵% از بیماران ESKD است. دیابت همچنین یک علت شایع ESKD در مصر، کویت، لبنان

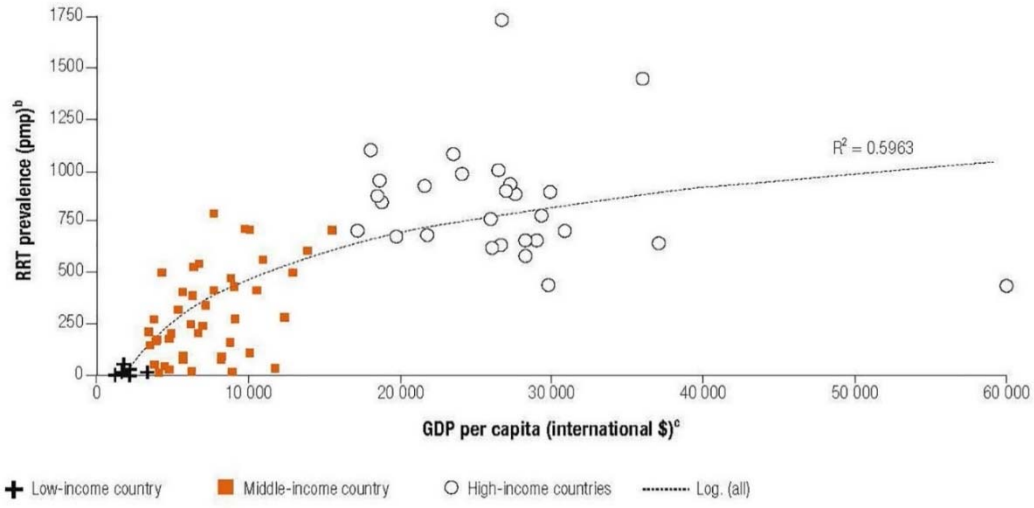
[2] WHO Noncommunicable diseases Fact sheet Updated January 2015
[3] Bulletin of the World Health Organization 2008;86:229–237.

و عربستان است. پیش بینی می گردد که تا سال ۲۰۳۰ جمعیت مبتلایان به دیابت، ۳۶۶ میلیون نفر بزرگسال در سراسر جهان خواهد بود که اکثریت آنها از کشورهای LMIC خواهند بود. نرخ رو به رشد ابتلا به دیابت در مناطق در حال توسعه به ناچار با افزایش ESKD همراه خواهد بود. همزمان، بسیاری از کشورهای LMIC به میزان قابل توجهی با افزایش عوامل عفونی بیماریهای کلیوی که به طور معمول در کشورهای HIC دیده نمی شود، مانند شیستوزومیازیس، HIV، سل، آمیلوئیدوز، هپاتیت B و C، و کم خونی داسی شکل (Sickle Cell Anaemia/SCA) مواجه خواهند بود. در هند، شمال آفریقا و چند کشور خاورمیانه، آلودگی محیط زیست، آفت کش ها و مواد شیمیایی دیگر، سوء استفاده از مسکن های ضد درد، داروهای گیاهی و مکمل های غذایی کنترل و تنظیم نشده به عنوان عوامل اصلی CKD تشخیص داده شده اند. بطور کلی بیماری ESKD فی نفسه در میان طبقات ضعیف تر اجتماع شایعتر است.

- ارائه خدمات درمانی RRT به بیماران ESKD در کشورهای LMIC

بعلت بار سنگین مالی درمان بیماران ESKD در کشورهای LMIC، تعداد نسبتا کمی از بیماران خدمات درمانیRRT دریافت می کنند (Fig 1).

Fig. 1**. Prevalence of patients receiving RRT, as at 31 December 2002, and GDP per capita**[a]



GDP, gross domestic product; pmp, per million population; RRT, renal replacement therapy.
[a] Classification of countries into low-, middle- and high-income are according to World Bank Analytical Classifications based on GNI per capita in US$ (2002).
[b] Data on RRT prevalence from: USRDS Annual Data Reports 2004 & 2005 (www.usrds.org); ERA-EDTA Registry Annual Reports 2002, 2003 & 2004 (www.era-edta-reg.org); Registro Latinoamericano de Diálisis y Trasplante Renal: Informe 2003 (www.slanh.org/registro/); United Kingdom Renal Registry Report, 2003 (www.renalreg.com); Barsoum R, Kidney Int Suppl 2003; 63: S111; Sitprija V, Kidney Int Suppl 2003;63:S128; Naicker S, Kidney Int Suppl 2003;63:S119; D'Amico G, Kidney Int Suppl 2005;98:S46.
[c] Data on GDP per capita refers to purchasing power parity (PPP) international dollars 2002, obtained from World Bank's World Development Indicators, 2005.

حدود ۸۰٪ از بیماران ESKD در کل جهان که خدمات درمانی RRT دریافت مي نمايند در آمريكاي شمالي، اروپا و ژاپن زندگی مي كنند. در مقابل، کمتر از ۱۰ درصد از بیماران مبتلا به ESKD در کشور هندوستان خدمات درمانی RRT دریافت مي كنند و این در حالی است که تا ۷۰٪ از این بیماران در کمتر از سه ماه از آغاز دیالیز

مي ميرند و يا از ادامه درمان ديالیز بعلت هزينه مالي سنگين منصرف مي گردند. تقريبا نيمی از بيماران تازه تشخيص داده شده ESKD كه در شهرهاي عمده كشور چين زندگی مي كنند، خدمات درمانی RRT دريافت مي كنند. اگر زمينه شيوع ESKD در سرزمين اصلی چين نزديک آمار استان تايوان باشد (۱۵۵۰ در هر يک ميليون جمعيت)، تعداد كل بيماران در جهان كه نياز به خدمات درمانی RRT دارند دو برابر خواهد شد. تنوع جهاني در تعداد بيماران ESKD كه خدمات درمانی RRT دريافت مي كنند؛ مي تواند نشاندهنده تنوع زمينه اي در نرخ بيماری كليه به دليل ريسک فاكتورهاي مختلف، تفاوتهاي ژنتيكی و يا عوامل محيطی باشد. علاوه بر اين موارد، محدوديت اقتصادي كشورهاي LMIC و لذا محدوديت در ارايه درمانهاي پرخرج از ديگر عوامل مهم اين تنوع جهاني است. از آنجاييكه سيستم دقيق و گسترده ثبت اطلاعات آماري در مورد بيماراني كه تحت ديالیز قرار مي گيرند و يا پيوند كليه دريافت مي كنند در تعداد كمي از كشورهاي وجود دارد، لذا دقت اطلاعات آماري در خصوص ميزان در دسترس بودن خدمات درمانی RRT ممكن است در كشورهاي مختلف متفاوت باشد و از اين رو كمتراز واقعيت گزارش كردن آمارهاي ذيربط مي تواند قابل توجه باشد. با اين تفاصيل كاملا روشن است كه تعداد زيادي از بيماران ESKD در كشورهای LMIC بدون دريافت هر گونه درمان می ميرند.

- هزينه هاي ديالیز

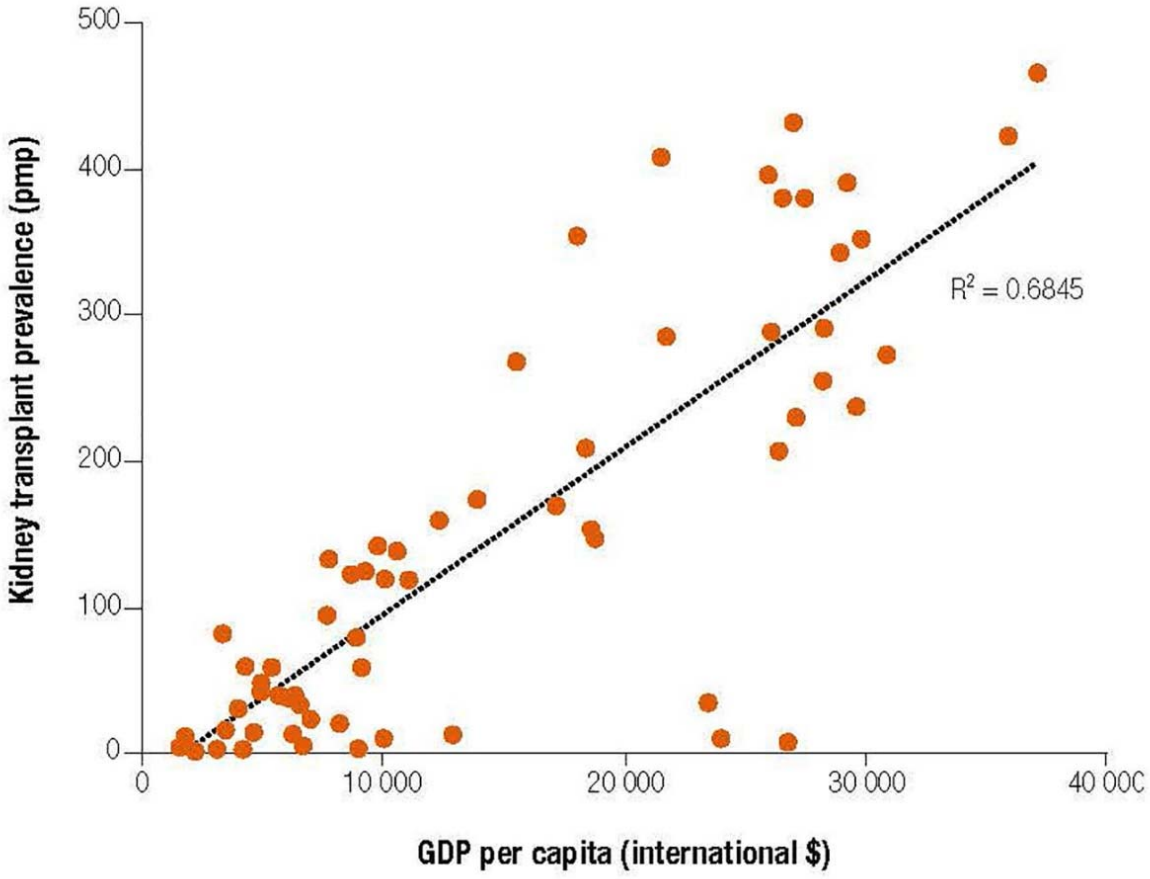
نمونه هايی از هزينه های سالانه همودياليز به ازای هر بيمار در كشورهاي مختلف بشرح زير هستند:
برزيل ۷۳۳۲ دلار، چين ۷۵۰۰ دلار، هندوستان ۵۰۰۰ دلار و اندونزي ۶۲۴۰ دلار.
با توجه به فاصله چشمگير بين سرانه هزينه خدمات درمانی و هزينه های همودياليز در كشورهای LMIC، تعجب آور نيست كه درمان همودياليز (سه روز در هفته) به ندرت از اولويت های دولت ها در كشورهای LMIC است و اغلب به بخش خصوصی محدود شده است. محدوديت های بودجه و عدم وجود تعداد كافی پرسنل آموزش ديده، موجب می گردد تا يک سيستم سهميه بندی دقيق خدمات درمانی RRT بوجود آيد و بيماران ESKD تشويق به مشاركت مالی و پرداخت هزينه ها می گردند. نتيجه يک مطالعه مشاهداتی در **آفريقای جنوبی** نشان داد كه بيش از نيمی از بيماران ESKD جديد از خدمات درمانی RRT محروم هستند. دلايل اين محروميت در اكثر موارد ناشی از فقر؛ شامل شرايط نامناسب زندگی ، بيكاری و نبود آموزش و پرورش است كه منجر به سهميه بندی ديالیز به همراه بی عدالتی می گردد. در مطالعه مشاهداتی **آفريقای جنوبی** مشخص گرديد كه احتمال دريافت خدمات درمانی RRT برای بيماران سفيد تقريبا چهار برابر بيشتر از ساير اقوام اين كشور بود. در بسياری از كشورها، ارائه خدمات درمانی RRT در درجه اول بستگی دارد به اينكه آيا بيمار تحت پوشش بيمه درمانی و يا موسسات خيريه است و يا در غير اين صورت آيا می تواند هزينه های مربوطه را شخصا پرداخت نمايد يا خير.

- پيوند كليه

پيوند موفق كليه، فوايد و نتايج مثبت چشمگيری بشرح زير دارد:
بهبود و ارتقاء قابل توجه بقا و طول عمر و كيفيت سلامت بيمار و همچنين صرفه جويی قابل توجه در هزينه ها در مقايسه با ديالیز. در ايالات متحده آمريكا پيش بينی می گردد طول عمر، دريافت كنندگان پيوند كليه كه در محدوده سنی ۲۰-۳۹ سال هستند، ۱۷ سال بيشتر از بيمارانی است كه در ليست انتظار باقی مانده اند. بيمارانی كه پيوند كليه دريافت كرده اند در مقايسه با بيماران تحت درمان ديالیز، با محدوديتهای به مراتب كمتری در زندگی روزمره خود مواجه هستند. اكثر بيمارانی كه پيوند كليه دريافت كرده اند، فعاليتهای فيزيكی و فكری خود را نزديک به شرايط نرمال گزارش نموده اند. در كشورهای HIC، هزينه های جاری سالانه حفظ يک پيوند كليه سالم و عملياتی، حدود يک سوم تا يک چهارم هزينه های درمان ديالیز است. با توجه به نتايج بهتر برای بيماران و قابليت بالقوه برای كاهش هزينه های هر بيمار كليوی، تغيير نوع درمان بيماران كليوی از ديالیز به پيوند كليه در دستور كار مسئولين بهداشت و درمان بسياری از كشورهای HIC قرار دارد اما مانع اصلی؛ نرخ پايين اهدای عضو باقی مانده است.

نرخ پیوند کلیه به طور گسترده ای در سطح بین المللی متفاوت است و نابرابری جدی جهانی در دسترسی به پیوند وجود دارد. در بسیاری از کشورهای LMIC، پیوند کلیه به علت عدم وجود زیرساختهای لازم، نادر است (Fig 2).

Fig. 2. **Prevalence of kidney transplantation and GDP per capita**[a]

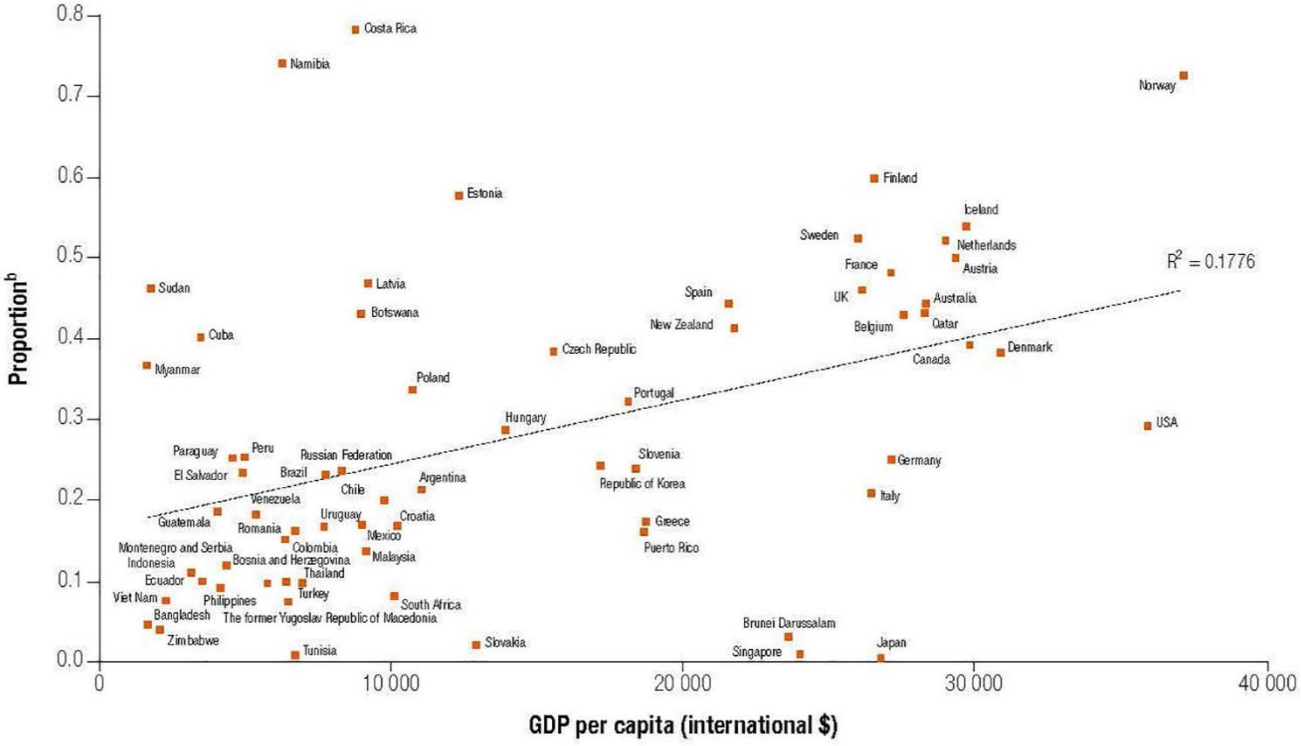


GDP, gross domestic product; pmp, per million population.
[a] Data obtained as for Fig. 1.

و از سوی دیگر بقاء بیماری که پیوند کلیه دریافت کرده است با مشکلاتی ناشی از گرانی داروهای سرکوب کننده ایمنی، سوء تغذیه و بیماری های عفونی بخصوص سل مواجه است. احساسات ناخوشایند نسبت به اهداء عضو می تواند یک عامل بازدارنده باشد. در مالزی اگرچه برنامه های دیالیز در ده سال گذشته بسرعت گسترش یافته ولی پیوند کلیه با نرخ سالانه ۷/۵ پیوند در هر یک میلیون، علی رغم دسترسی به جدیدترین درمانهای سرکوب کننده ایمنی و نمایش توان حفظ پیوند به مدت طولانی و قابل مقایسه با کشورهای HIC، ثابت مانده و افزایش نیافته است. در برخی از کشورهای جهان، نابرابری جنسیتی موجب محدودیت دسترسی به پیوند کلیه می گردد. به عنوان مثال، در هندوستان؛ کلیه برای پیوند از اهدا کننده گان زنده که رابطه فامیلی با دریافت کنندگان کلیه برای پیوند دارند معمولا از خانمها به آقایان اهدا می گردد.

نرخ بالای پیوند کلیه در برخی کشورهای LMIC نیز مشاهده شده است. برای مثال کشورکاستاریکا یک نمونه است: در سال ۲۰۰۲، ۷۸ درصد از بیماران ESKD خدمات درمانی RRT از نوع پیوند کلیه دریافت کرده اند که در میان بالاترین نسبت در جهان بوده است (Fig 3).

Fig. 3. **Proportion of overall RRT made up by kidney transplantation by GDP per capita**[a]



GDP, gross domestic product; RRT, renal replacement therapy.
[a] Data obtained as for Fig. 1.
[b] Data show the prevalence of functioning kidney transplants as a proportion of overall renal replacement therapy.

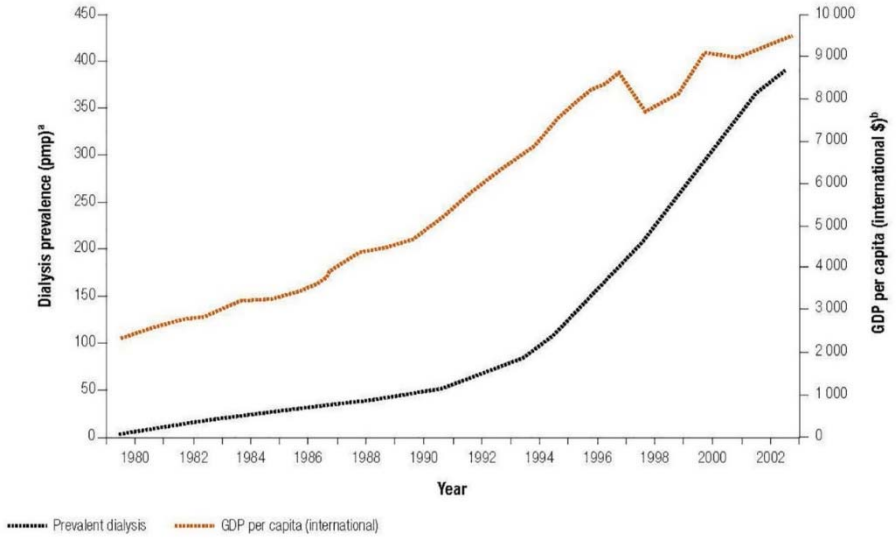
این موفقیت مرهون یک سیستم بهداشت عمومی است که ۹۸٪ از جمعیت را تحت پوشش قرار می دهد و دسترسی عادلانه به خدمات درمانی RRT فراهم می کند و از سوی دیگر نرخ بالای داوطلبان زنده اهدای کلیه است (هر چند اهدا کلیه از سوی متوفیان پایین باقی مانده است) .

- منابع تامین مالی درمان بیماران ESKD در کشورهای LMIC

در کشورهای با پایین ترین درآمد ملی (LIC) که در آنها در واقع بیشتر بیماران ESKD دسترسی به خدمات درمانی RRT ندارند، پیشگیری هدف کلیدی خواهد بود. مداخلات پیشگیرانه باید متناسب با درآمد محدود حکومت و بودجه محدود مخارج بهداشتی باشد. سه برابر درآمد سرانه ناخالص ملی به عنوان حداقل مقرون به صرفه بودن در کشورهای در حال توسعه توصیه می شود. مصرف ترکیبی چند دارو برای پیشگیری از بیماری های قلبی عروقی در جمعیت در معرض ریسک اینگونه بیماری ها در کشورهای در حال توسعه، یک روش موثر مبتنی بر این بودجه بندی بوده است. اطلاعات و داده ها در مورد مقرون به صرفه بودن مداخله پیشگیرانه برای ممانعت از بروز بیماری مزمن کلیه وجود ندارد، اما مشخص شده است که پیشگیری از بروز بیماری مزمن کلیه می تواند مقرون به صرفه ترین روش به عنوان بخشی از یک استراتژی یکپارچه با هدف پیشگیری از بروز بیماری های مزمن عروقی تلقی

گردد. یک مثال از این نوع مداخله پیشگیرانه موفق در مناطق روستایی هند نشان داده است، رسیدن به اهداف فشار خون و دیابت، و کاهش شیوع بیماری مزمن کلیه با هزینه سرانه سالانه ۰/۴۳ آمریکا مقدور بوده است. در این برنامه با بکارگیری کارکنان بهداشتی غیر پزشک و ارزان ترین تست های تشخیصی موجود و داروها، هزینه ها به حداقل تقلیل یافت. دارو درمانی ترکیبی شامل؛ دوز ثابتی از آسپرین، استاتین، یک مهار کننده ACE و یک دیورتیک / بتا بلاکر، همچنین می تواند به عنوان یک رویکرد پیشگیرانه بالقوه برای کاهش شیوع بیماری مزمن عروقی در کشورهای LMIC در نظر گرفته شود. با این حال بایستی امکان دریافت خدمات درمانی RRT در دسترس کسانی که در کشورهای LMIC دچار ESKD می گردند باشد. علاوه بر این، با رشد اقتصادی، تقاضا برای دریافت خدمات درمانی RRT افزایش خواهد یافت (Fig 4).

Fig. 4. **Dialysis prevalence rate compared with GDP per capita in Malaysia from 1980 to 2003**



GDP, gross domestic product; pmp, per million population.
[a] Data on dialysis prevalence from: Eleventh Report of the Malaysian Dialysis and Transplant Registry 2003 (www.msn.org.my/nrr/).
[b] Data on GDP per capita refers to purchasing power parity (PPP) international dollars 2002, obtained from World Bank's World Development Indicators, 2005.

این افزایش ناشی است از:
- رشد زمینه های بروز و شیوع بیماری مزمن کلیوی به علت پیر شدن جمعیت، شهرنشینی و تغییر شیوه زندگی؛
- توسعه بخش بهداشت و درمان و بیمه درمانی، موجب دسترسی بیشتر بیماران ESKD به خدمات درمانی RRT شده است؛
- افزایش عمومی انتظارات بیماران در سرتاسر دنیا برای دریافت خدمات درمانی
- افزایش تمکن وقدرت مالی بسیاری از بیماران و توانمندی و تمایل آنها برای پرداخت هزینه های درمان و
- بهبود و ارتقاء زیرساخت های بهداشتی درمانی، در دسترس بودن دارو ها و افزایش تعداد پرسنل متخصص و ماهر در بخش بهداشت و درمان

سطح پایین توسعه اقتصادی، تقریبا به طور قطع در دسترس بودن خدمات درمانی RRT را در بسیاری از کشورها محدود نگه خواهد داشت و این مشکل نه تنها به علت هزینه های خدمات درمانی RRT، بلکه همچنین به علت پایین بودن سطح سلامتی عمومی و کمبود زیرساخت های مدنی برای اجرای برنامه های دیالیز و پیوند کلیه برای دست یابی به نتایج مورد قبول است.

گزارش سال ۲۰۱۵ بنیاد ملی کلیه (آمریکا)

National Kidney Foundation/NFK[4]

بنیاد ملی کلیه، یک سازمان بهداشت و درمان خیریه در ایالات متحده است که مقر آن در شهر نیویورک و بیش از ۳۰ دفتر محلی در سراسر آمریکا دارد. ماموریت این بنیاد جلوگیری از بیماری ها کلیه و مجاری ادراری ، بهبود سلامت و رفاه افراد و خانواده های تحت تاثیر این بیماری ها و افزایش در دسترس بودن اعضاء بدن انسان برای عمل پیوند است.

بنیاد ملی کلیه آمریکا در ماه مارس ۲۰۱۵، آمار و اطلاعات جهانی زیر را درباره بیماری های کلیوی منتشر نموده است.

- ۱۰ درصد از جمعیت جهان تحت تاثیر بیماری مزمن کلیوی (CKD) قرار دارند، و میلیون ها نفر در هر سال در سرتاسر جهان به علت فقر و عدم دسترسی به درمان مناسب می میرند.
- بر اساس مطالعات جهانی در سال ۲۰۱۰ در خصوص تاثیر بیماریها بر مرگ انسانها، بیماری مزمن کلیوی (CKD) در سال ۱۹۹۰ در لیست فهرست علل تعداد کل مرگ و میر در سراسر جهان در رتبه ۲۷ قرار داشت، اما در سال ۲۰۱۰ به رتبه ۱۸ در لیست ارتقاء یافته است که متاسفانه سریعترین رشد پس از HIV و ایدز را داشته است.
- در حال حاضر بیش از ۲ میلیون نفر در سراسر جهان درمان دیالیز یا پیوند کلیه برای زنده ماندن دریافت می کنند، اما در عین حال این تعداد تنها ممکن است فقط نشان دهنده ۱۰ درصد از مردمی باشد که در واقع نیاز به درمان دارند.
- از ۲ میلیون نفر بیمار مبتلا به نارسایی کلیه که درمان جایگزینی کلیه RRT دریافت می کنند، اکثریت آنها در پنج کشور ایالات متحده آمریکا، ژاپن، آلمان، برزیل و ایتالیا درمان می شوند. این پنج کشور در بر گیرنده فقط ۱۲ درصد از جمعیت جهان هستند. در حدود ۱۰۰ کشور در حال توسعه جهان که در بر گیرنده بیش از ۵۰٪ جهان هستند، فقط به ۲۰ درصد از ۲ میلیون نفر صدرالاشاره درمان جایگزینی کلیه RRT ارایه می نمایند.
- بیش از ۸۰٪ از تمام بیماران مبتلا به نارسایی کلیه در سطح جهان که درمان برای نارسایی کلیه دریافت می کنند در کشورهای مرفه که خدمات بهداشتی و درمانی کامل به شهروندان خود ارایه میدهند و جمعیت سالمندان بالایی دارن زندگی می کنند.
- برآورد شده است که در کشورهای در حال توسعه مانند چین و هند که جمعیت افراد مسن در آنها در حال افزایش هستند، تعداد بیماران مبتلا به نارسایی کلیه به شکل نامتناسبی افزایش خواهد یافت.
- در کشورهای با درآمد متوسط، درمان دیالیز یا پیوند کلیه بار مالی زیادی برای اکثر افرادی که به آن نیاز دارید ایجاد می کند. در ۱۱۲ کشور دیگر، بسیاری از مردم اصلا نمی توانند هیچگونه درمانی دریافت کنند و این وضعیت سالانه منجر به مرگ بیش از یک میلیون بیمار نارسایی کلیوی بعلت عدم دریافت هرگونه درمان می گردد.
- هزینه سالانه درمان بیماری مزمن کلیه در ایالات متحده، احتمالا به بیش از ۴۸ میلیارد دلار می رسد. درمان بیماران مبتلا به نارسایی کلیه در آمریکا حدود ۶/۷٪ از کل بودجه سالانه بهداشت و درمان را مصرف می کند و این در حالیست که تعداد بیماران مبتلا به نارسایی کلیه کمتر از ۱٪ از کل جمعیت تحت پوشش خمات بهداشتی و درمانی هستند.

[4] https://www.kidney.org/kidneydisease/global-facts-about-kidney-disease#_ENREF_3

- در چین، اقتصاد این کشور در یک دهه آینده؛ به علت مرگ و از کار افتادگی ناشی از بیماری های قلبی و کلیوی، بیش از ۵۵۸ میلیارد دلار متضرر خواهد شد.
- در اروگوئه، هزینه سالانه دیالیز نزدیک به ۲۳ میلیون دلار آمریکا است، که در حدود ۳۰ درصد از بودجه صندوق منابع ملی برای درمان بیماری های خاص را دربر می گیرد.
- در انگلستان، بر اساس جدیدترین گزارش منتشر شده از سوی سازمان خدمات درمانی ملی انگلیس، هزینه درمان بیماری مزمن کلیه و نارسایی کلیه از مجموع هزینه درمان سرطان های پستان، ریه، روده بزرگ و پوست بوده است.
- در استرالیا، درمان همه موارد فعلی و جدید (آتی) نارسایی کلیه تا سال ۲۰۲۰ حدود ۱۲ میلیارد دلار آمریکا هزینه خواهد داشت.
- در سرتاسر جهان برآورد شده است که در میان افراد ۶۵ تا ۷۴ ساله، یک نفر از هر پنج مرد و یک نفر از هر چهار زن، دارای بیماری مزمن کلیه هستند.
- بیماری های غیر واگیر (مانند بیماری قلبی، دیابت و بیماری کلیوی) به عنوان شایع ترین علل مرگ زودرس در سراسر جهان جایگزین بیماری های واگیر (مانند آنفولانزا، مالاریا و ایدز) شده اند. حدود ۸۰٪ از این مرگهای زودرس در کشورهای LMIC ، و ۲۵٪ از این مرگهای زودرس در افراد جوان تر از ۶۰ سال رخ می دهد .
- بیماری مزمن کلیه یک بحران بهداشتی در سراسر جهان است. به عنوان مثال، در سال ۲۰۰۵، حدود ۵۸ میلیون مورد مرگ و میر در سراسر جهان گزارش و ثبت گردیده است که بر اساس گزارش سازمان بهداشت جهانی؛ ۳۵ میلیون مورد از این مرگ و میر، ناشی از بیماری های مزمن بوده است.
- بیماری مزمن کلیه را می توان درمان کرد. با تشخیص زودرس و درمان، این امکان برای کاهش سرعت یا توقف پیشرفت بیماری کلیوی وجود دارد.

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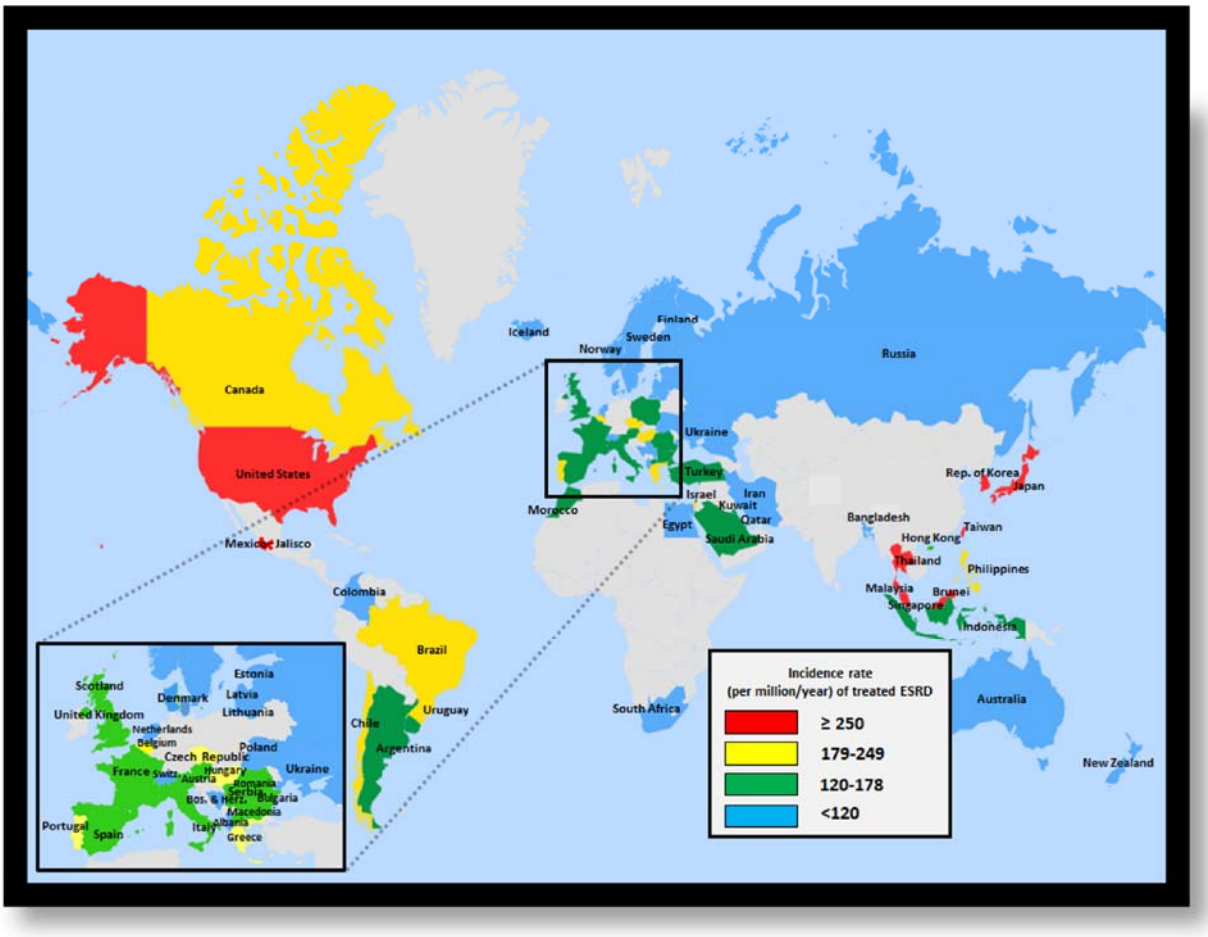

vol 2 Fig 11.1 Geographic variations in the incidence rate of treated ESRD (per million population/year), by country, 2015

آمار بیماران جدید ESRD تحت درمان در آفریقای جنوبی در سال ۹۳-۹۴ (۱۵-۲۰۱۴):
۲۸ نفر در هر یک میلیون نفر جمعیت

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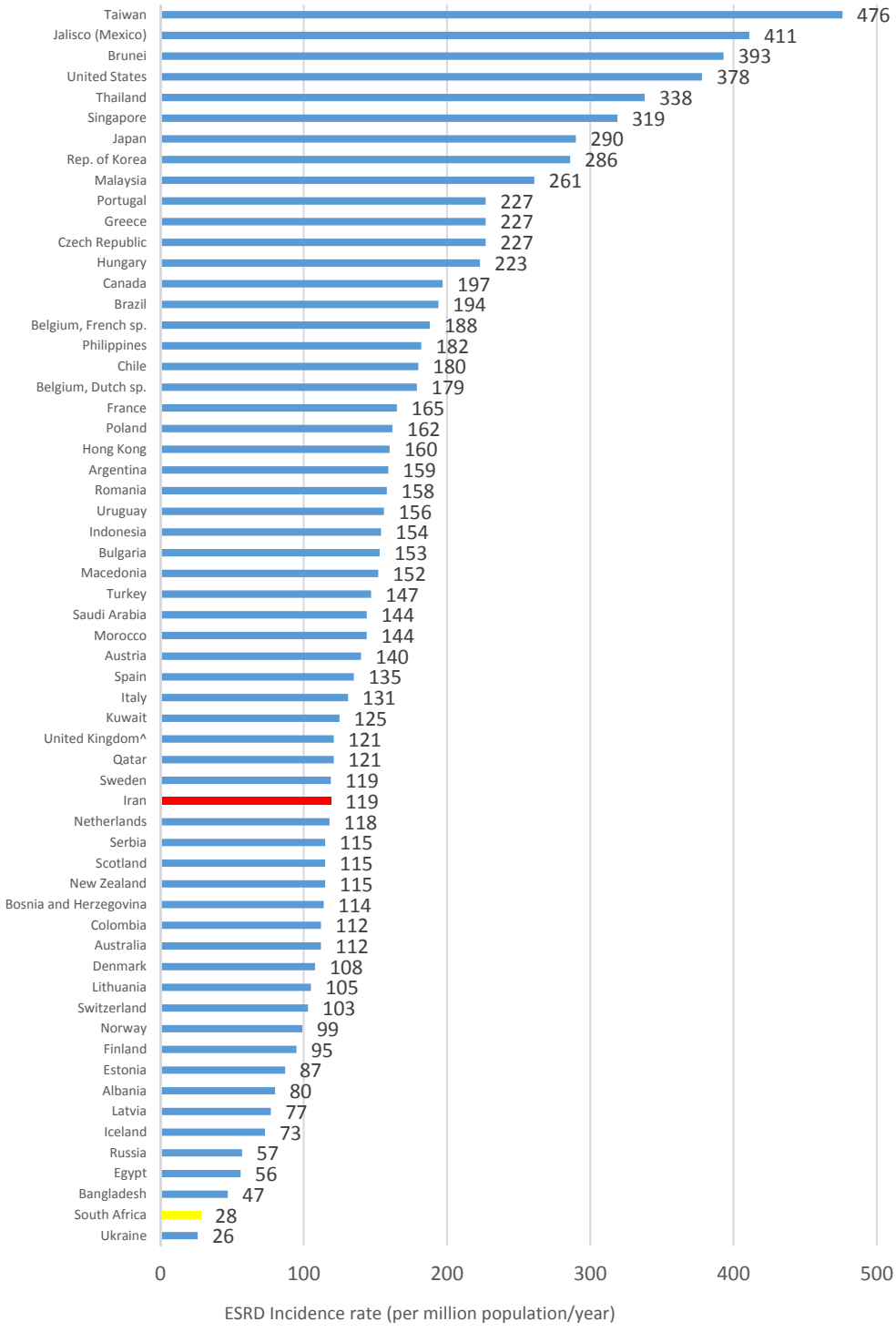

vol 2 Fig 11.2 Incidence rate of treated ESRD (per million population/year), by country, 2015

درصد بیماران دیابتی در میان بیماران جدید کلیوي در <u>آفریقای جنوبی</u>؛ در سال ۹۳-۹۴ (۲۰۱۵):

۲۴٪

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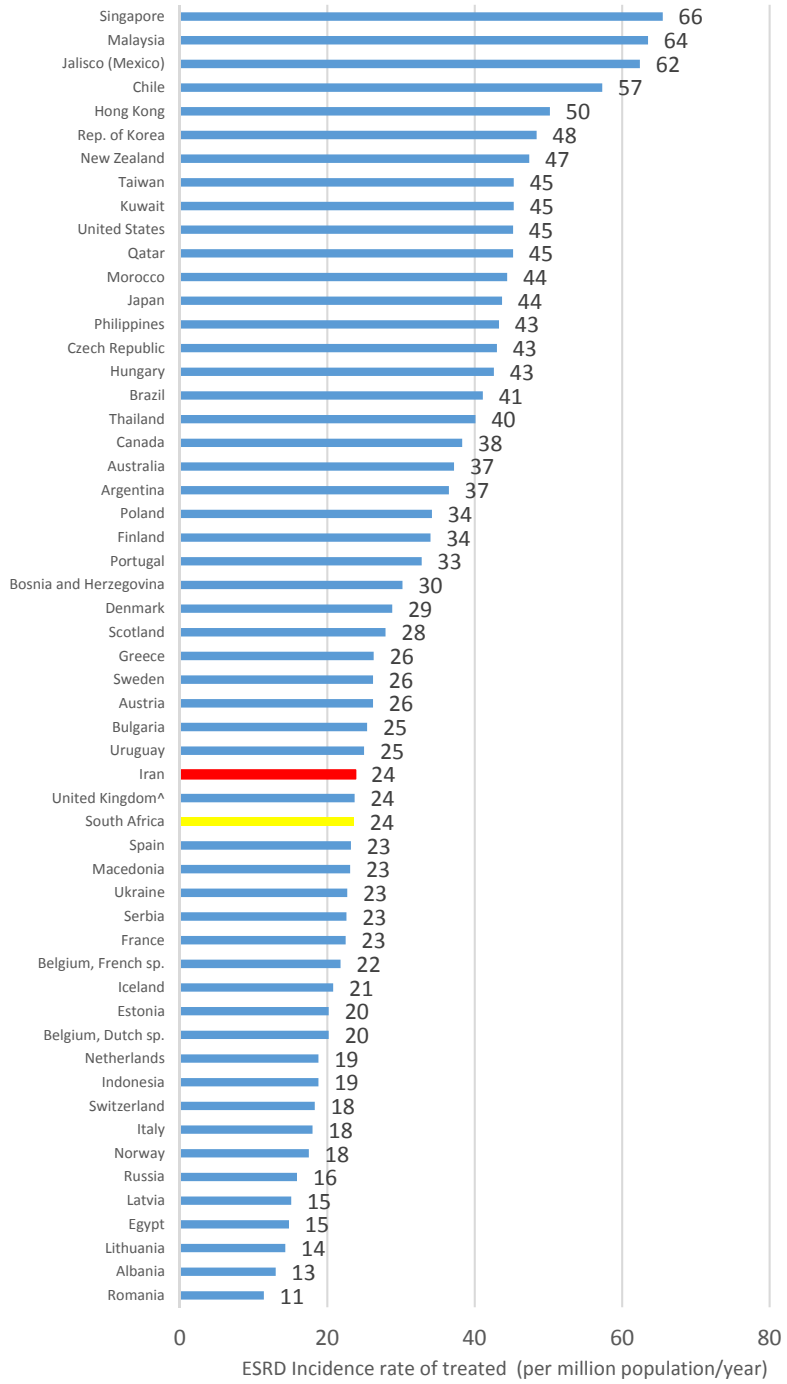

vol 2 Fig 11.4 Percentage of incident ESRD patients with diabetes as the primary cause of ESRD, by country, 2015

تعداد کل بیماران کلیوي در هر یک میلیون جمعیت برخي کشورهاي جهان که در سال ۹۳-۹۴ (۲۰۱۵) تحت درمان قرار گرفته اند

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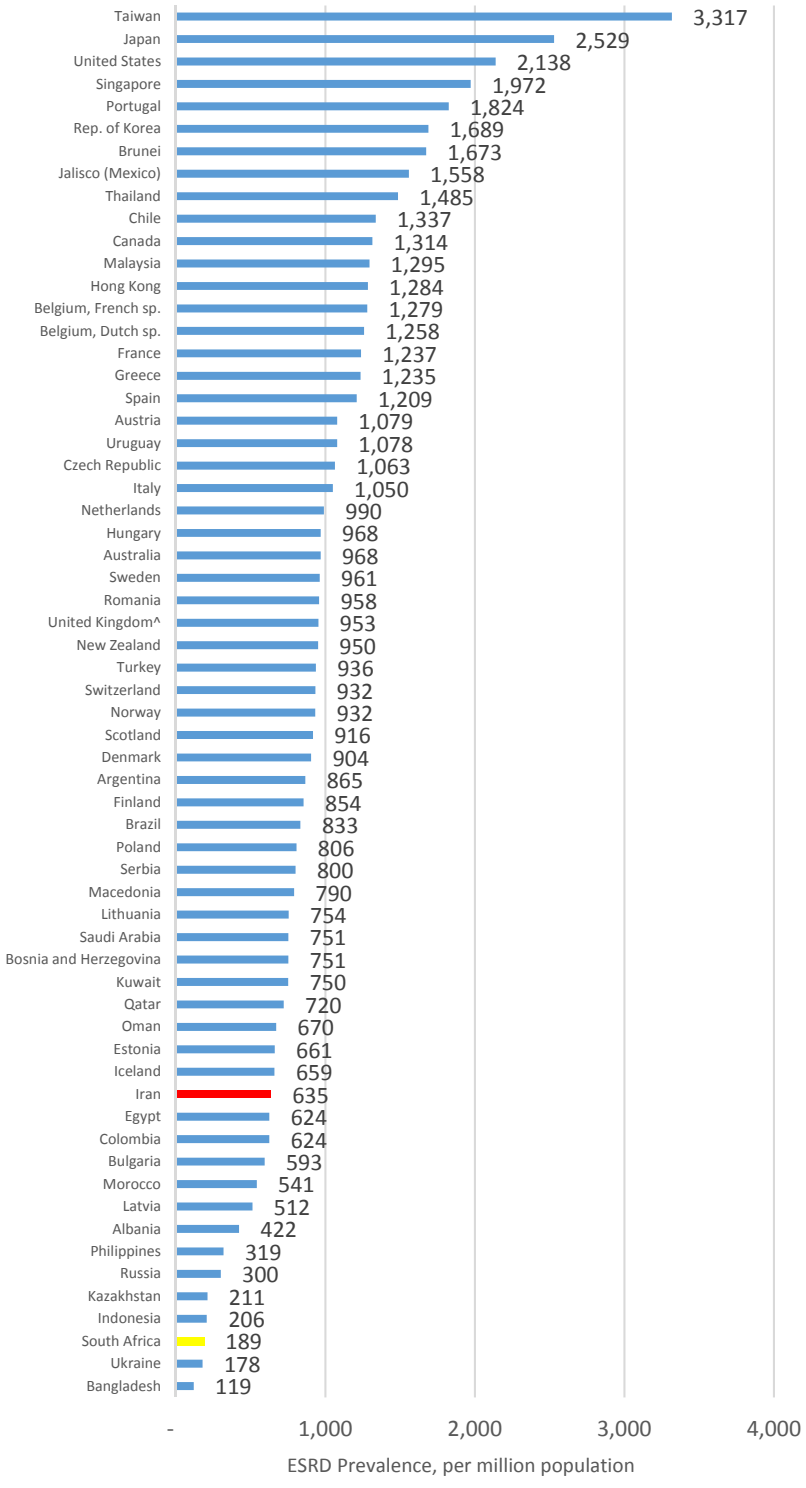

vol 2 Fig 11.9 Prevalence of treated ESRD per million population, by country, 2015

تعداد کل بیماران کلیوي بر حسب جنسیت در هر یک میلیون جمعیت برخي کشورهاي جهان که در سال ۹۳-۹۴ (۲۰۱۵) تحت درمان قرار گرفته اند

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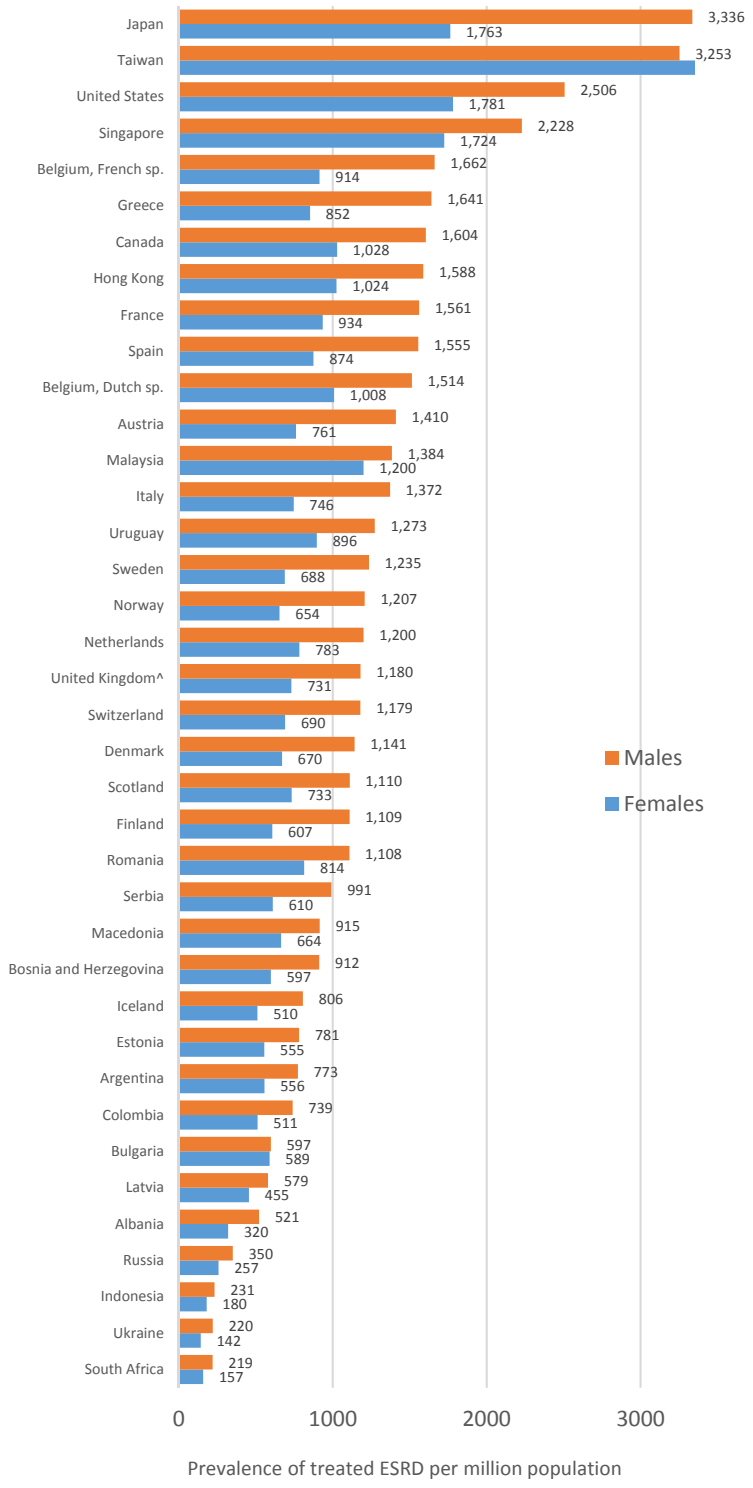

vol 2 Fig 11.10 Prevalence of treated ESRD per million population, by sex and country, 2015

درصد روشهاي درماني بيماران كليوي (Renal Replacement Thropies / RRT) در كشورهاي مختلف در سال ۹۴-۹۳ (۲۰۱۵)

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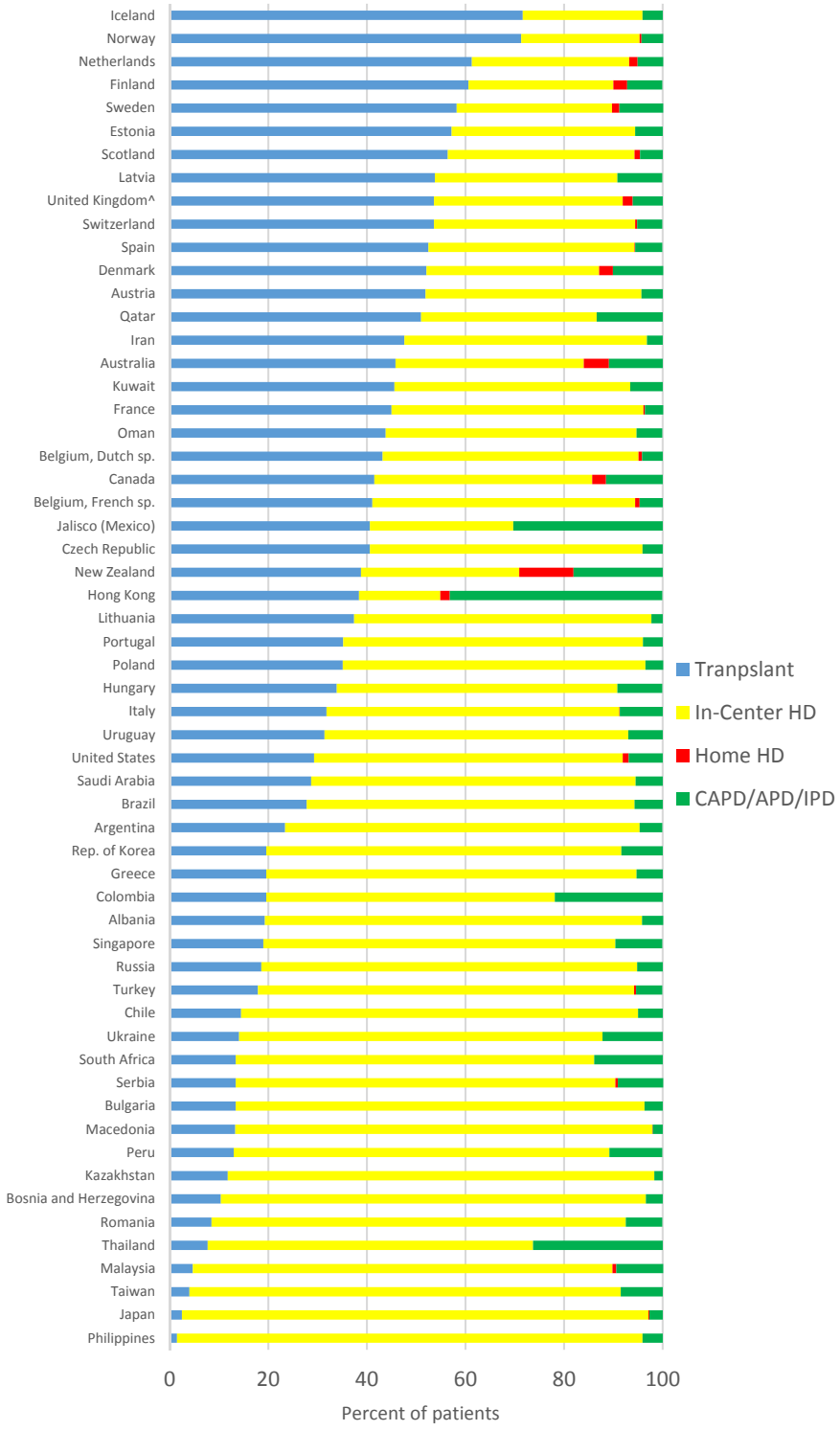

vol 2 Fig 11.12 Percentage distribution of type of renal replacement therapy modality used by ESRD patients, by country, in 2015

آمار تعداد کل بیماران دیالیزی تحت درمان در هر یک میلیون نفر جمعیت برخی کشورهای جهان در سال ۹۳-۹۴ (۲۰۱۵)
آفریقای جنوبی: ۱۶۳ نفر در هر یک میلیون نفر جمعیت

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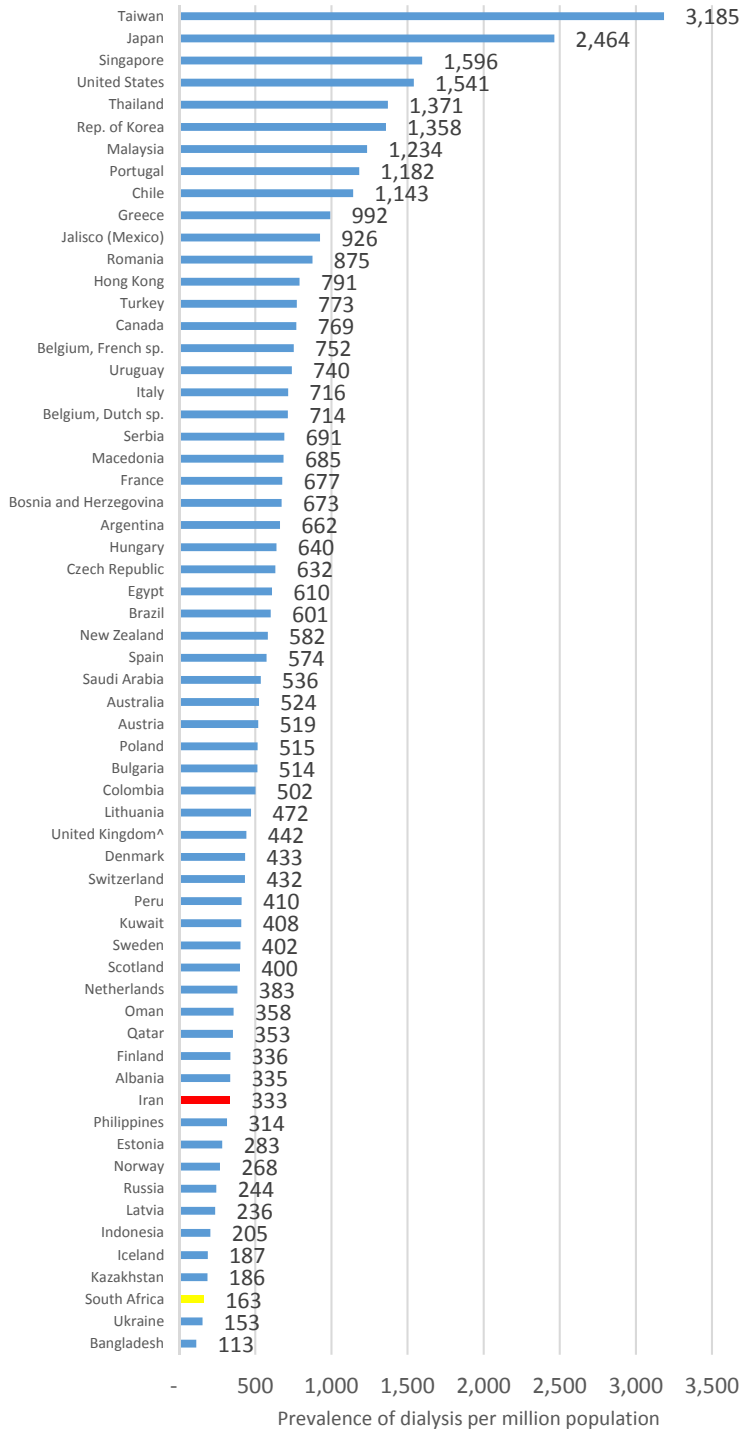

vol 2 Fig 11.13 Prevalence of dialysis per million population, by country, 2015

درصد بیماران دیالیزي در برخی کشورهای جهان که در سال ۹۳-۹۴ (۲۰۱۵) تحت درمان در مراکز دیالیز، دیالیز در منزل و یا صفاقي قرار گرفته اند

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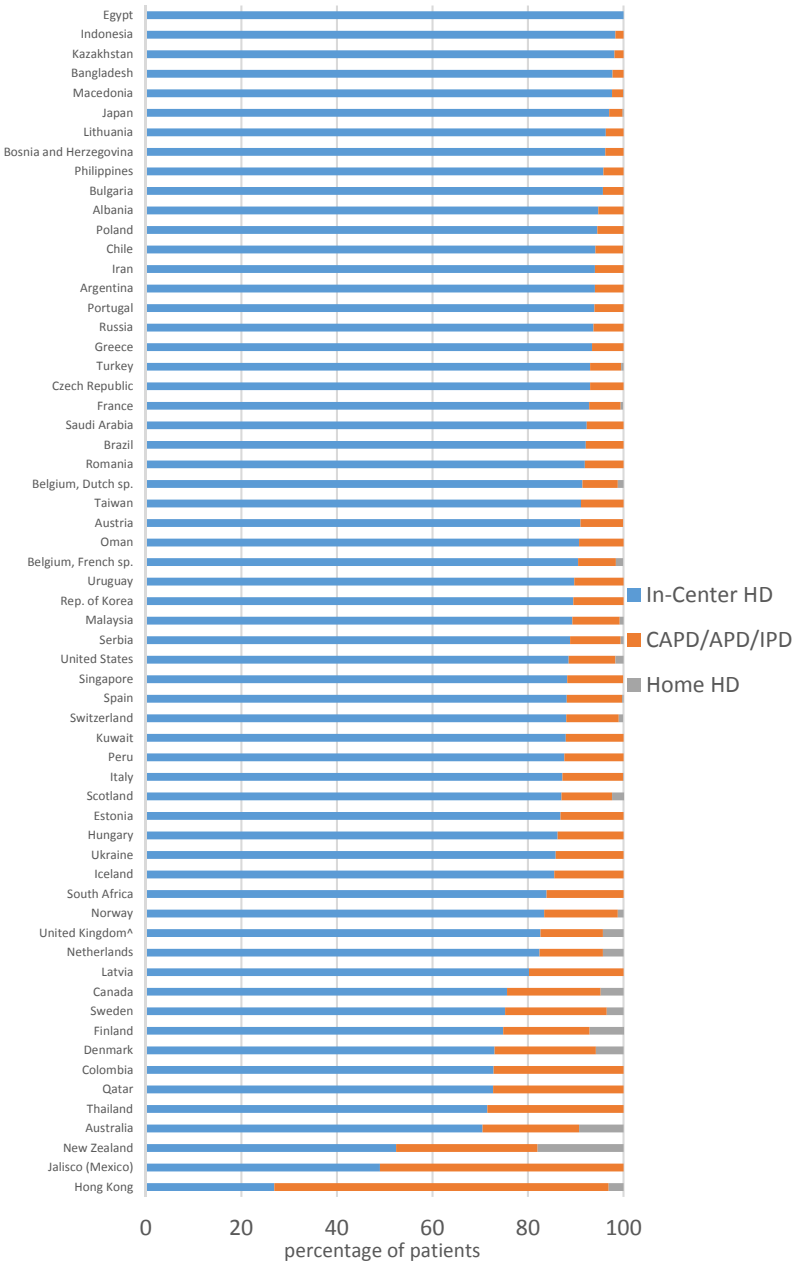
Country	In-center HD درمان در مراکز دیالیز	CAPD/APD/IPD دیالیز صفاقي	Home HD دیالیز در منزل
South Africa	84%	16%	0.0%



vol 2 Fig 11.15 Distribution of the percentage of prevalent dialysis patients using in-center HD, home HD, or peritoneal dialysis (CAPD/APD/IPD), 2015

تعداد بیماران کلیوي که پیوند کلیه دارند در هر یک میلیون جمعیت در برخی کشورهای جهان در سال ۹۳-۹۴ (۲۰۱۵)
آفریقای جنوبی: ۵ نفر در هر یک میلیون نفر جمعیت (Fig 13.16a و Fig 11.16(a)

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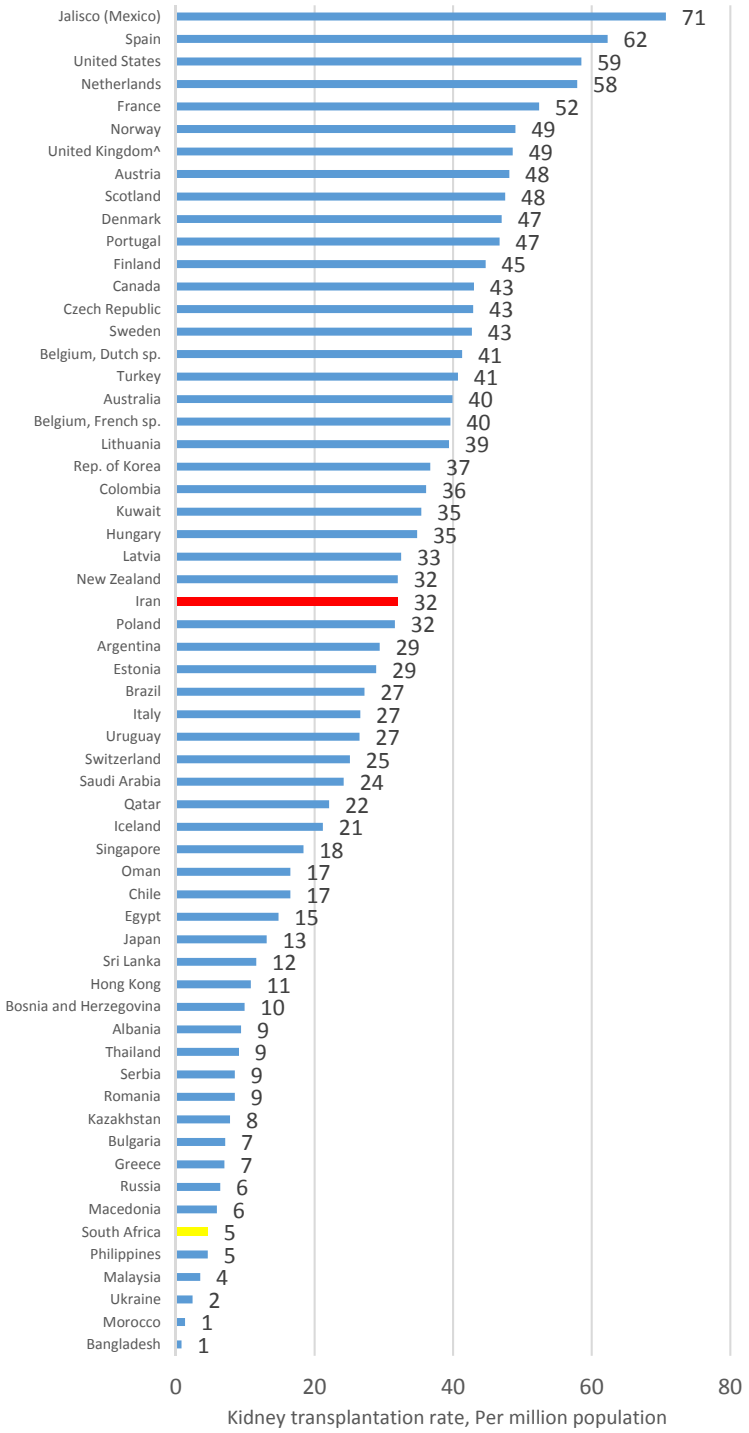

vol 2 Fig 11.16(a) Kidney transplantation rate, per million population, by country, 2015

آمار بیماران کلیوي که پیوند کلیه دارند در هر هزار نفر بیمار دیالیزي در برخی کشورهای جهان در سال ۹۳-۹۴ (۲۰۱۵).
Fig 13.16(b) و Fig 11.16(b)
آفریقای جنوبی: ۲۸ نفر در هر هزار نفر بیمار دیالیزي

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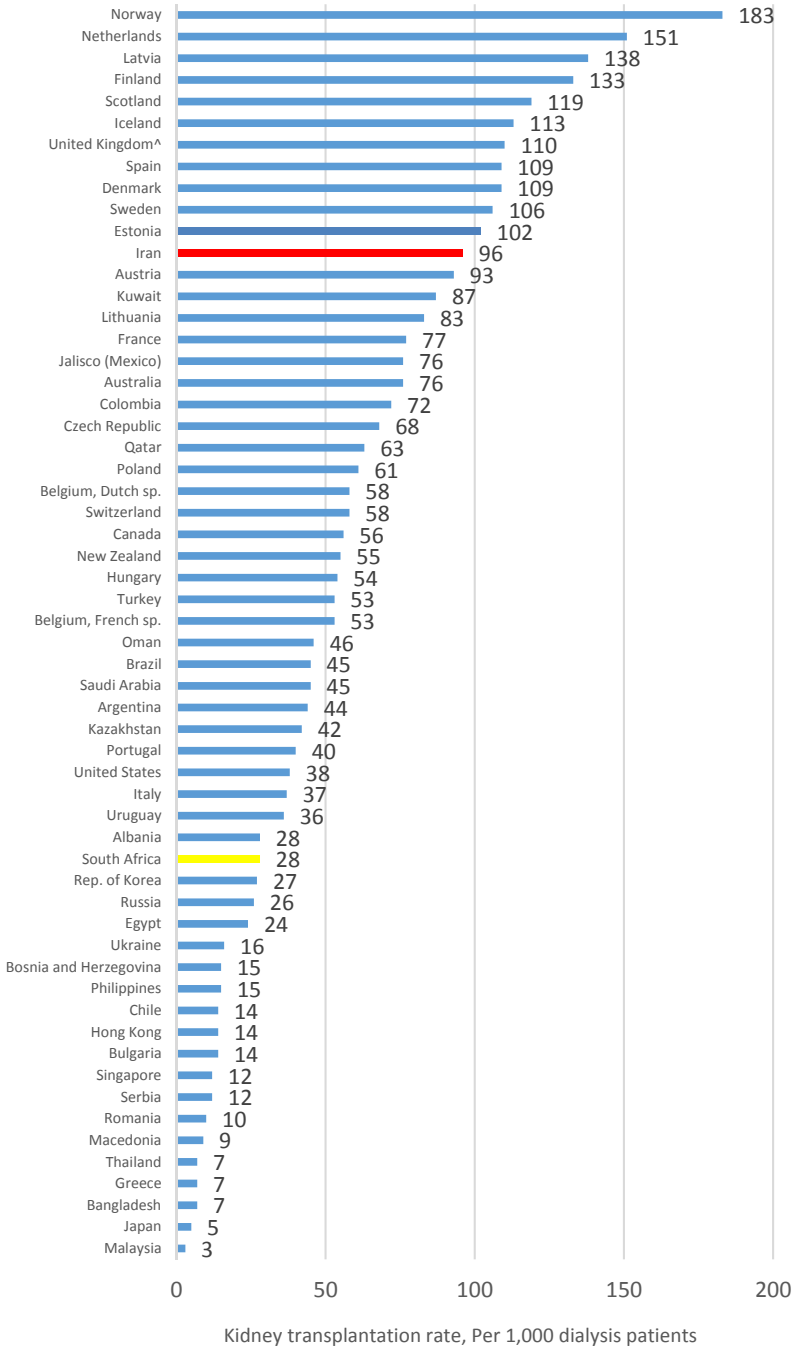

vol 2 Fig 11.16(b) Kidney transplantation rate, per 1000 dialysis patients, by country, 2015

درصد منابع تامین کلیه براي پیوند در برخی کشورهای جهان در سال ۹۳-۹۴ (۲۰۱۵)

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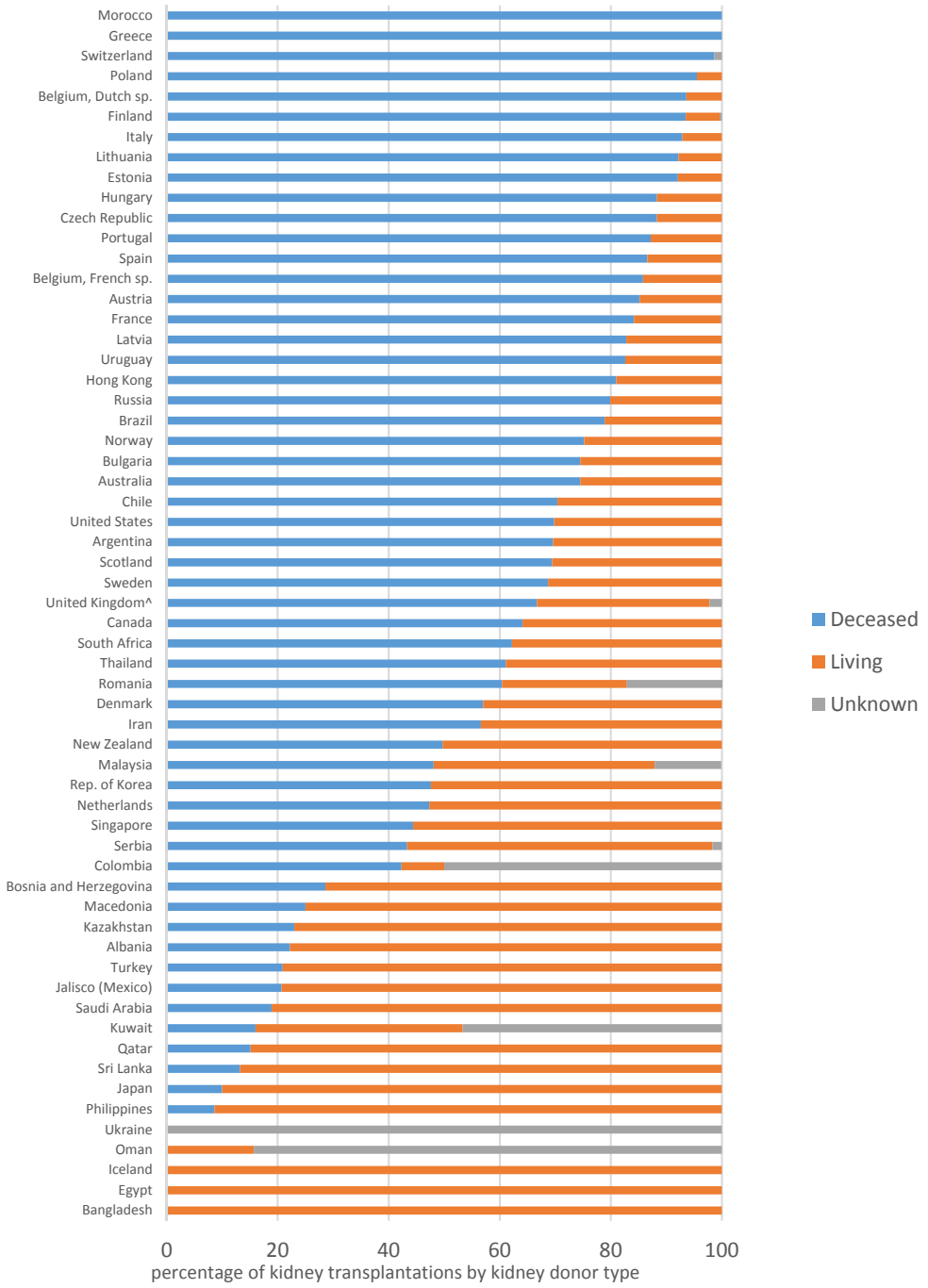
Country	Deceased	Living	Unknown
South Africa	62%	38%	0.0



vol 2 Fig 11.18 Distribution of the percentage of kidney transplantations by kidney donor type and country, 2015

تعداد کل بیماران کلیوي که پیوند کلیه موفقیت آمیز دارند در هر یک میلیون نفر جمعیت برخی کشورهای جهان در سال ۹۴-۹۳ (۲۰۱۵)
آفریقای جنوبی: ۲۵ نفر در هر یک میلیون نفر جمعیت

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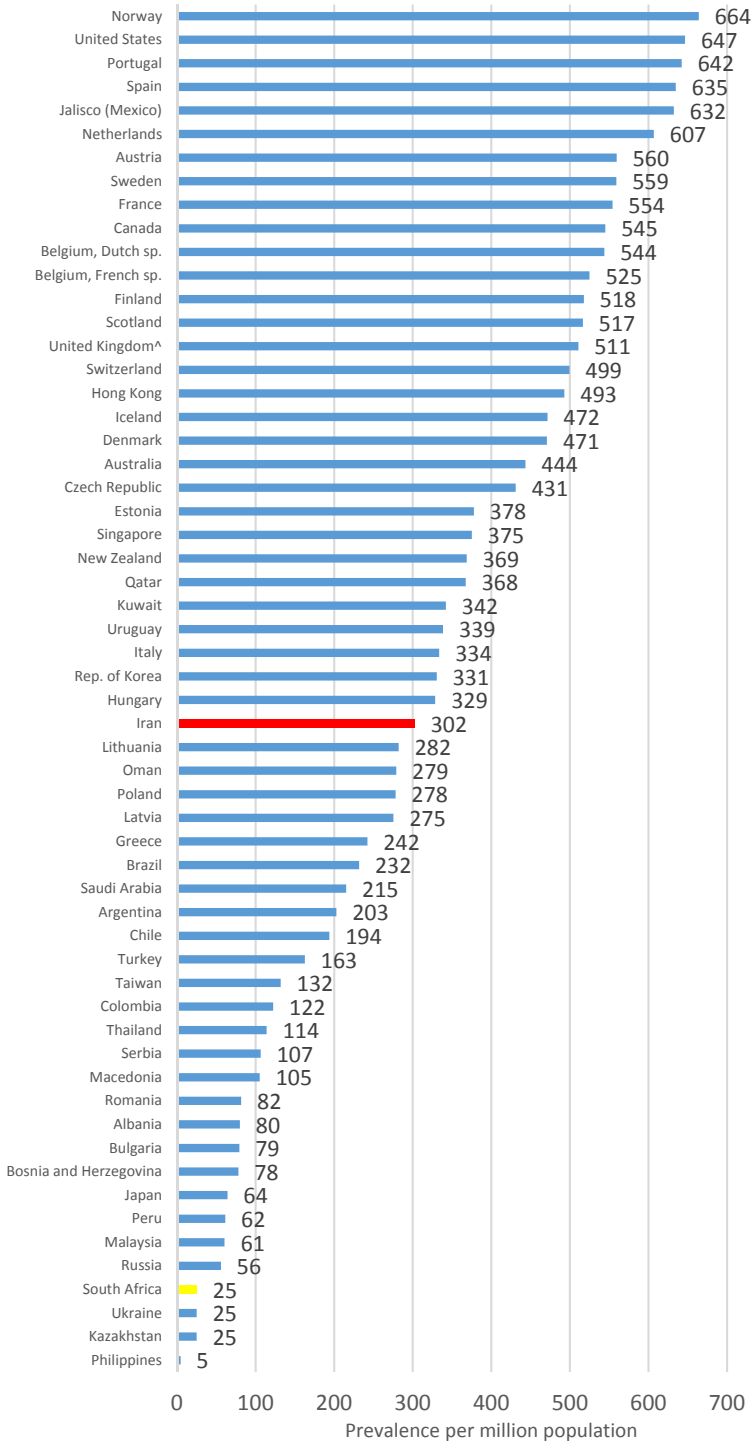

vol 2 Fig 11.19 Prevalence of treated ESRD patients with a functioning kidney transplant, per million population, by country, 2015

تعداد کل بیماران کلیوي در هر یک میلیون جمعیت آفریقای جنوبی که در سالهاي ۹۰-۹۱ الي ۹۳-۹۴ (۱۵-۲۰۱۲) تحت درمان قرار گرفته اند

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Country	2012	2013	2014	2015	% Average point to point (annual) change from 2012 to 2015
South Africa	163.7	166.8	177.6	188.5	
		6.47%	6.14%	1.89%	+4.84%

Table N.4.a ESRD prevalence, per million population, unadjusted, by country, 2002-2015

تعداد کل بیماران کلیوي در آفریقای جنوبی که در سالهاي ۹۰-۹۱ الي ۹۳-۹۴ (۱۵-۲۰۱۲) تحت درمان قرار گرفته اند

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Country	2012	2013	2014	2015	% Average point to point (annual) change from 2012 to 2015
South Africa	8,559	8,840	9,591	10,360	
		3.28%	8.50%	8.02%	+6.60%

Table N.4.b Point prevalent counts of patients treated for ESRD at the end of the calendar year, by country, 2002-2015

تغییرات تعداد کل بیماران دیالیزي در هر یک میلیون جمعیت آفریقای جنوبی که در سالهاي ۹۰-۹۱ الي ۹۳-۹۴ (۱۵-۲۰۱۲) تحت درمان قرار گرفته اند

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Country	2012	2013	2014	2015	% Average point to point (annual) change from 2012 to 2015
South Africa	132.9	142.2	151.4	163.2	
		7.00%	6.47%	7.79%	+7.09%

Table N.6 Trends in the prevalence of dialysis per million population, unadjusted, by country, 2002-2015

درصد بیماران دیالیزي در آفریقای جنوبی که در سالهاي ۹۰-۹۱ الي ۹۳-۹۴ (۲۰۱۲-۱۵) تحت درمان در مراکز دیالیز، دیالیز در منزل و یا دیالیز صفاقي قرار گرفته اند

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In-center HD								
Country					2012	2013	2014	2015
South Africa					82.7	83.6	84.2	83.9
					5,746	6,295	6,882	7,529
CAPD/APD/IPD								
Country					2012	2013	2014	2015
South Africa					17.3	16.4	15.8	16.1
					1,206	1,238	1,295	1,440
Home HD								
Country					2012	2013	2014	2015
South Africa					0.0	0.0	0.0	0.0
					0.0	0.0	0.0	0.0

Table N.7 Percentage of prevalent dialysis patients using in-center HD, home HD, or peritoneal dialysis (CAPD/APD/IPD), 2002-2015

نرخ تغییرات بیماران کلیوي که پیوند کلیه دارند در هر یک میلیون جمعیت آفریقای جنوبی در سالهاي ۹۰-۹۱ الي ۹۳-۹۴ (۲۰۱۲-۱۵)

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Country	2012	2013	2014	2015	% Average point to point (annual) change from 2012 to 2015
South Africa	4.7	4.6	4.1	4.6	
		-2.1%	-10.87%	12.20%	**-0.27%**

Table N.8 Kidney transplantation rates per million population, unadjusted, by country, 2002-2015

تغییرات تعداد کل بیماران کلیوي که پیوند کلیه موفقیت آمیز دارند در هر یک میلیون جمعیت آفریقای جنوبی که در سالهاي ۹۰-۹۱ الي ۹۳-۹۴ (۲۰۱۲-۱۵)

2017 USRDS Annual Data Report Reference Tables, Volume 2 ESRD, International, Chapter 11

Country	2012	2013	2014	2015	% Average point to point (annual) change from 2012 to 2015
South Africa	30.7	24.7	26.2	25.3	
		-19.5%	6.1%	-3.4%	-5.64%

Table N.9 Trends in the prevalence of treated ESRD patients living with a functioning kidney transplant, per million population, unadjusted, by country, 2002-2015

تغییرات درصد بیماران کلیوي که پیوند کلیه موفقیت آمیز دارند در آفریقای جنوبی که در سالهاي ۹۰-۹۱ الي ۹۳-۹۴ (۱۵-۲۰۱۲)

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Country	2012	2013	2014	2015	% Average point to point (annual) change from 2012 to 2015
South Africa	18.8	14.8	14.7	13.4	
		-21.3%	-0.7%	-8.8%	-10.27%

Table N.10 Trends in the percent of treated ESRD patients living with a functioning kidney transplant, by country, 2002-2015

جمع بندی و نتیجه گیری:

بر اساس گزارشات سازمان بهداشت جهانی، در دنیا تعداد کل بیماران نارسایی کلیه (ESKD Patients) با نرخ متوسط رشد سالانه ۸% تقریبا هر ۱۰ سال دو برابر می گردد. این بدین معنی است که در حالیکه آمار بیماران نارسایی کلیوی در سال ۲۰۱۵ در **آفریقای جنوبی** 10,360 نفر بوده است، تعداد کل بیماران نارسایی کلیه (ESKD Patients) در سال ۲۰۲۴ به حدود **آفریقای جنوبی** 20,710 نفر خواهد رسید.

از سوی دیگر بر اساس اطلاعات و داده های مستخرج از گزارشهای سال ۲۰۱۵، ۲۰۱۶ و ۲۰۱۷ میلادي سامانه ملی اطلاعات بیماران کلیوی آمریکا (United States Renal Data System/USRDS, Annual Data Report 2015, 2016 & 2017) برآورد می گردد که در **آفریقای جنوبی** تعداد کل بیماران نارسایی کلیه (ESKD Patients) با نرخ متوسط رشد سالانه ۶/۶۰% تقریبا هر ۱۱ سال دو برابر گردد. این بدین معنی است که در حالیکه آمار بیماران نارسایی کلیوی در سال ۲۰۱۵ در **آفریقای جنوبی** 10,360 نفر است ، تعداد کل بیماران نارسایی کلیه (ESKD Patients) در سال ۲۰۲۶ به حدود 20,924 نفر خواهد رسید. البته با توجه به اینکه اطلاعات و داده های مربوط به **آفریقای جنوبی** در گزارش USRDS ناقص و کم شمار هستند؛ لذا لازم است که با جمع آوری اطلاعات و داده های دقیق تر در سال های آتی این برآورد مورد بازنگری قرار گیرد.

ARYA TEB FIROUZ

لینکهای اینترنتی مرتبط با تجهیزات دیالیز در آفریقای جنوبی

سازنده گان تجهیزات و مواد مصرفی دیالیز و ارایه دهنده گان خدمات دیالیز در آفریقای جنوبی.

نتیجه بررسی وب سایتهای سازنده گان تجهیزات و مواد مصرفی دیالیز و ارایه دهنده گان خدمات دیالیز بشرح زیر می باشد.

- شرکت **FRESENIUS**، سازنده تجهیزات و مواد مصرفی دیالیز و ارایه دهنده خدمات دیالیز؛ با ۶۳ مرکزدیالیز در آفریقای جنوبی حضور گسترده دارد.

https://www.freseniusmedicalcare.com/en/patients-families/dialysis-center-finder/

Fresenius Medical Care provides services in dialysis centers in countries around the world. In Europe, Middle East, Africa and Latin America this Fresenius Medical Care service is called NephroCare. In North America this service is called Fresenius Kidney Care.

https://www.nephrocare.co.za/dialysis-centers.html

- شرکت **B. BRAUN** سازنده تجهیزات و مواد مصرفی دیالیز و ارایه دهنده خدمات دیالیز؛ با ۳۳ مرکزدیالیز در آفریقای جنوبی حضور گسترده دارد.

https://www.bbraun.com/en/patients/renal-care-for-patients/renal-care-centers.html#

https://www.bbraun.com/en/patients/renal-care-for-patients/renal-care-centers/africa/south-africa.html

❖ شرکت های ژاپنی **NIKKISO** و **ASAHI KASEI** سازنده تجهیزات و مواد مصرفی دیالیز، در آفریقا حضور ندارد.

http://www.nikkiso.com/company/group.html

http://www.nikkiso.com/products/pump/overseas.html

لیکن شرکت آفریقای جنوبی **ISIGIDI MEDICAL SUPPLIES** در وب سایت خود اعلام داشته که فروشنده محصولات شرکت های ژاپنی NIKKISO و ASAHI KASEI (سازنده گان تجهیزات و مواد مصرفی دیالیز) در آفریقای جنوبی است.

http://www.isigidi-medical.com/Isigidi-Medical

http://www.isigidi-medical.com/products/dialysis-renal/nikkiso

Distributor of Asahi Kasei apheresis & dialysis products in South Africa

Distributor of Nikkiso dialysis machine and products in South Africa

توصیه می گردد حتی الامکان از چگونگی فعالیت این شرکت و مشتریهای آن در آفریقای جنوبی کسب اطلاع گردد.

❖ شرکت ژاپنی **JMS** سازنده تجهیزات و مواد مصرفی دیالیز، در آفریقا حضور ندارد.

https://www.jms.cc/english/products/products_03.html

https://www.jms.cc/english/company/group.html

لیکن شرکت **JMS North America**، شعبه آمریکایی شرکت ژاپنی **JMS** در وب سایت خود اعلام داشته که فروشنده محصولات **JMS** در آفریقا است ولی هیچگونه آدرسی نداده است.

http://www.jmsna.net/

شرکت آفریقای جنوبی **SSEM Mthembu Medical (Pty) Ltd**، فروشنده محصولات **JMS** در آفریقای جنوبی است.

http://www.ssemmthembu.co.za/index.php/about-us

http://www.ssemmthembu.co.za/index.php/suppliers

http://www.ssemmthembu.co.za/index.php/suppliers/jms

ضمنا شرکت **SSEM Mthembu Medical (Pty) Ltd**، فروشنده تجهیزات و مواد مصرفی دیالیز شرکت تایوانی **Bioteque Corporation** و شرکت چینی **Well Lead** نیز در آفریقای جنوبی است.

http://www.ssemmthembu.co.za/index.php/suppliers/bioteque-corporation

http://www.ssemmthembu.co.za/index.php/suppliers/well-lead

توصیه می گردد حتی الامکان از چگونگی فعالیت این شرکت و مشتریهای آن در آفریقای جنوبی کسب اطلاع گردد.

- شرکت **NIPRO** سازنده تجهیزات و مواد مصرفی دیالیز ظاهرا فقط نمایندگی فروش محصولات در آفریقای جنوبی دارد.

https://www.nipro.co.jp/en/corporate/network/group.html

https://www.nipro.co.jp/en/corporate/network/oversea_device.html

Nipro Medical South Africa Pty Ltd- 4B Dwyka Street; Stikland Industria Cape Town, 7530, South Africa

Nipro Medical South Africa Pty Ltd Johannesburg Branch- 226 Market street, Fairland 2170 Johannesburg, South Africa

توصیه می گردد حتی الامکان از چگونگی فعالیت این شرکت و مشتریهای آن در آفریقای جنوبی کسب اطلاع گردد.

- شرکت **BAXTER (Gambro AB)** سازنده تجهیزات و مواد مصرفی دیالیز ظاهرا فقط نمایندگی فروش محصولات در آفریقای جنوبی دارد.

توصیه می گردد حتی الامکان از چگونگی فعالیت این شرکت و مشتریهای آن در آفریقای جنوبی کسب اطلاع گردد.

http://www.gambro.at/en/global/index.html

http://www.gambro.at/en/global/About-Gambro/Contact/index.html

http://www.gambro.at/en/global/About-Gambro/Contact/Gambro-locations/Africa/South-africa/index-id=1254.html

Baxter International Inc.'s acquisition of Gambro AB is complete

http://www.baxter.com/location-selector.page

BAXTER Healthcare South Africa (Pty) ltd

GROUND FLOOR TWICKENHAM BLDG THE CAMPUS

BRYANSTON, Gauteng, 2021 South Africa

+27-5756062

Company Type: Independent

- شرکت **BELLCO** سازنده تجهیزات و مواد مصرفی دیالیز و ارایه دهنده خدمات دیالیز، در آفریقا حضور ندارد.

http://www.bellco.net/company/13-en/contact-us.aspx

- شرکت **DAVITA** ارایه دهنده خدمات دیالیز، در آفریقا حضور ندارد.

https://www.davita.com/about/international

- شرکت **DIAVERUM** ارایه دهنده خدمات دیالیز، در آفریقا حضور ندارد.

https://www.diaverum.com/en-FR/Corporate-Menu/Contact/

https://www.diaverum.com/en-FR/Clinic-finder/

ARYA TEB FIROUZ

لینکهای اینترنتی مرتبط با مراکز دیالیز در آفریقای جنوبی

بیمارستانها و کلینیک های نفرولوژی و دیالیز در آفریقای جنوبی

بر اساس اطلاعات مندرج در "گزارش وضعیت درمان بیماران کلیوی در آفریقای جنوبی در سال ۲۰۱۵ میلادی" که در سپتامبر ۲۰۱۷ میلادی منتشر گردیده؛ علاوه بر مراکز دیالیز دو برند معروف بین المللی "Fresenius Medical Care/NephroCare" با ۶۳ مرکز دیالیز و "B. Braun" با ۳۳ مرکزدیالیز، ۱۳۰ مرکز خصوصی و ۳۰ مرکز دولتی دیالیز بشرح جداول زیر در آفریقای جنوبی فعال هستند که مشخص نیست از کدام دستگاه های برند های پیش گفته استفاده می نمایند، که توصیه می گردد حتی الامکان از چگونگی فعالیت این بیمارستانها و دستگاه های دیالیز و مواد مصرفی مورد استفاده در این بیمارستانها کسب اطلاع گردد.

- **بیمارستانهای دولتی**

1	Addington Hospital	16	King Edward VIII Hospital
2	Boitumelo Regional Hospital (Kroonstad)	17	Klerksdorp Hospital
3	Bongani Regional Hospital (Welkom)	18	Leratong Hospital
4	Charlotte Maxeke Johannesburg Academic Hospital	19	Livingstone Hospital
5	Chris Hani Baragwanath Hospital	20	Mafikeng Hospital
6	Dihlabeng Regional Hospital (Bethlehem)	21	Mofumahadi Manapo Mopeli Hospital (Qua Qua)
7	Dr George Mukhari Hospital	22	Nelson Mandela Academic Hospital
8	Frere Hospital	23	Ngwelezana Hospital
9	George Hospital	24	Pelonomi Regional Hospital
10	Greys Hospital	25	Red Cross War Memorial Children's Hospital
11	Groote Schuur Hospital	26	Sebokeng Hospital
12	Helen Joseph Hospital	27	Steve Biko Academic Hospital
13	Inkosi Albert Luthuli Hospital	28	Tygerberg Hospital
14	Job Shimankana Tabane Hospital	29	Universitas Academic Hospital
15	Kimberley Hospital	30	Worcester Hospital

[5] South African Renal Registry Annual Report 2015

● بیمارستانهای خصوصی NRC

NRC/National Renal Care

Established in 1995, National Renal Care (NRC) is a wholly South African owned company and is the only private dialysis therapy provider in SA that has a national network of **54** dedicated dialysis units with a presence in every major centre throughout the country.

https://www.nrc.co.za/
https://www.nrc.co.za/units.htm

	EASTERN CAPE	35	NRC Sunninghill		**LIMPOPO**
1	NRC Butterworth	36	NRC Sunward Park	66	NRC Polokwane Acutes
2	NRC East London Acutes	37	NRC Waterfall City	67	NRC Polokwane
3	NRC East London HD			68	NRC Venda
4	NRC East London PD		**LENASIA RENAL CENTRE**	69	NRC Thamazimbi
5	NRC King Williamstown	38	LRC Lenasia		
6	NRC King Williamstown PD				**MPUMALANGA**
7	NRC Kwadwesi		**RENAL CARE HOLDINGS (RCH)**	70	NRC Nelspruit Acutes
8	NRC Mdantsane	39	RCH Tembisa Acutes	71	NRC Nelspruit
9	NRC Mthatha Acutes	40	RCH Tembisa		
10	NRC Mthatha HD				**NORTH-WEST**
11	NRC Port Elizabeth Acutes		**GAUTENG NORTH EAST**	72	NRC Rustenburg Acutes
12	NRC Port Elizabeth	41	NRC Akasia	73	NRC Rustenburg
13	NRC Port Elizabeth PD	42	NRC Arcadia	74	NRC Rustenburg PD
14	NRC Queenstown	43	NRC Lyttleton		
15	NRC Uitenhage	44	NRC Montana		**NORTHERN CAPE**
		45	NRC Northern Acutes	75	NRC Kimberley Acutes
	FREE-STATE	46	NRC Pretoria East	76	NRC Kimberley
16	NRC Bloemfontein Acutes	47	NRC Pretoria PD	77	NRC Kimberley PD
17	NRC Bloemfontein				
18	NRC Bloemfontein PD		**KWA-ZULU NATAL**		**WESTERN CAPE**
19	NRC Kroonstad	48	NRC Athlone	78	NRC Blaauwberg
20	NRC Pelonomi	49	NRC Ballito	79	NRC Cape Acutes
		50	NRC Berea	80	NRC Cape Town CBD
	GAUTENG CENTRAL	51	NRC Chatsworth	81	NRC Cape Town PD
21	NRC Alberton	52	NRC Durban PD	82	NRC George Acutes
22	NRC Benoni (Rijnfield)	53	NRC Gateway	83	NRC George
23	NRC Gauteng Acutes	54	NRC Hillcrest	84	NRC Goodwood
24	NRC Head Office	55	NRC Kwa-Zulu Natal Acutes	85	NRC Kuilsrivier
25	NRC Johannesburg PD	56	NRC Ladysmith	86	NRC Paarl
26	NRC Krugersdorp	57	NRC Margate	87	NRC Plumstead
27	NRC Linksfield	58	NRC Pietermaritzburg CBD Acutes	88	NRC Vredenburg
28	NRC Mayfair	59	NRC Pietermaritzburg CBD		
29	NRC Mulbarton	60	NRC Pietermaritzburg PD		
30	NRC Olivedale	61	NRC Pinetown		
31	NRC Parktown West	62	NRC Richardsbay Acutes		
32	NRC PPP Sebokeng	63	NRC Richardsbay		

33	NRC Sedibeng Acutes	64	NRC Umhlanga
34	NRC Sedibeng	65	NRC Kwa-Zulu Natal Regional Office

- **بیمارستانهای خصوصی Life Healthcare**

با ۶۰ بیمارستان و یک بیمارستان زنان که در ۲۰ بیمارستان مرکز دیالیز دایر می باشد.

Life Healthcare
60 Hospitals (20 Dialysis Centers)
1 Maternity Clinic
https://www.lifehealthcare.co.za/hospitals/

1	Life Glynnview	Benoni	32	Life Fourways Hospital	Johannesburg
2	Life The Glynnwood	Benoni	33	Life New Kensington Clinic	Johannesburg
3	Life Pasteur Hospital	Bloemfontein	34	Life Riverfield Lodge	Johannesburg
4	Life Rosepark Hospital	Bloemfontein	35	Life Robinson Private Hospital	Johannesburg
5	Life Kingsbury Hospital	Cape Town	36	Life Roseacres Hospital	Johannesburg
6	Life Orthopaedic Hospital	Cape Town	37	Life Wilgeheuwel Hospital	Johannesburg
7	Life Peninsula Eye Hospital	Cape Town	38	Life Anncron Hospital	Klerksdorp
8	Life Sports Science Orthopaedic Surgical Day Centre	Cape Town	39	Life Knysna Private Hospital	Knysna
9	Life St Vincent's	Cape Town	40	Life Midmed Hospital	Middelburg
10	Life Vincent Pallotti Hospital	Cape Town	41	Life Bay View Private Hospital	Mossel Bay
11	Life Chatsmed Garden Hospital	Durban	42	Life St Mary's Private Hospital	Mthatha
12	Life Entabeni Hospital	Durban	43	Life Piet Retief Hospital	Piet Retief
13	Life Mount Edgecombe Hospital	Durban	44	Life Hilton Private Hospital	Pietermaritzburg
14	Life St Joseph’s	Durban	45	Life Hunterscraig Hospital	Port Elizabeth
15	Life The Crompton Hospital	Durban	46	Life Isivivana Hospital	Port Elizabeth
16	Life Westville Hospital	Durban	47	Life Mercantile Hospital	Port Elizabeth
17	Life Beacon Bay Hospital	East London	48	Life St George's Hospital	Port Elizabeth
18	Life East London Private Hospital	East London	49	Life Brooklyn Day Hospital	Pretoria
19	Life St Dominic's Hospital	East London	50	Life Eugene Marais Hospital	Pretoria
20	Life St James Hospital	East London	51	Life Faerie Glen Hospital	Pretoria
21	Life St Mark's Clinic	East London	52	Life Groenkloof Hospital	Pretoria
22	Life Empangeni Private Hospital	Empangeni	53	Life Pretoria North Surgical Centre	Pretoria
23	Life Gaborone Private Hospital	Gaborone	54	Life Wilgers Hospital	Pretoria
24	Life Suikerbosrand Hospital	Heidelberg	55	Life Queenstown Private Hospital	Queenstown
25	Genesis Maternity Clinic	Johannesburg	56	Life Poortview	Roodepoort
26	Life Bedford Gardens Hospital	Johannesburg	57	Life La Femme Clinic	Rustenburg
27	Life Brenthurst Hospital	Johannesburg	58	Life Peglerae Hospital	Rustenburg
28	Life Carstenhof Hospital	Johannesburg	59	Life Springs Parkland Hospital	Springs
29	Life Carstenview	Johannesburg	60	Life West Coast Private Hospital	Vredenburg
30	Life Dalview Hospital	Johannesburg	61	Life Cosmos Hospital	Witbank

31	Life Flora Hospital	Johannesburg

1	Life Bedford Gardens Hospital
2	Life Brenthurst Hospital
3	Life Carstenhof Hospital
4	Life Chatsmed Hospital
5	Life East London Private Hospital
6	Life Empangeni Hospital
7	Life Entabeni Hospital
8	Life Fourways Hospital
9	Life Groenkloof Hospital
10	Life Hilton Hospital
11	Life Knysna Hospital
12	Life Midmed Hospital
13	Life Mount Edgecombe Hospital
14	Life New Mercantile Hospital
15	Life Rosepark Hospital
16	Life The Glynnwood Hospital
17	Life Vincent Pallotti Hospital
18	Life Vincent Pallotti Hospital Paediatrics
19	Life Westville Hospital
20	Life Wilgeheuwel Hospital

- **بیمارستانهای خصوصی Netcare Limited/Netcare Group**

با ۵۷ بیمارستان که در ۸ بیمارستان مرکز دیالیز دایر می باشد.

Netcare Limited/Netcare Group

https://www.netcare.co.za/

1 Kokstad Private Hospital
2 Lakeview Hospital
3 Netcare Akasia Hospital
4 Netcare Alberlito Hospital
5 Netcare Bell Street Hospital
6 Netcare Blaauwberg Hospital
7 Netcare Bougainville Hospital
8 Netcare Ceres Hospital
9 Netcare Christiaan Barnard Memorial Hospital
10 Netcare Clinton Hospital
11 Netcare Constantia Clinic
12 Netcare Cuyler Hospital
13 Netcare Femina Hospital
14 Netcare Ferncrest Hospital
15 Netcare Garden City Hospital
16 Netcare Greenacres Hospital
17 Netcare Jakaranda Hospital
18 Netcare Kingsway Hospital
19 Netcare Kroon Hospital
20 Netcare Krugersdorp Hospital
21 Netcare Kuilsriver Hospital
22 Netcare Linksfield Hospital
23 Netcare Linkwood Hospital
24 Netcare Linmed Hospital
25 Netcare Margate Hospital
26 Netcare Milpark Hospital
27 Netcare Montana Hospital
28 Netcare Moot Hospital
29 Netcare Mulbarton Hospital
30 Netcare N1 City Hospital
31 Netcare N17 Hospital
32 Netcare Olivedale Hospital
33 Netcare Park Lane Hospital
34 Netcare Parklands Hospital
35 Netcare Pholoso Hospital
36 Netcare Pinehaven Hospital
37 Netcare Pretoria East Hospital
38 Netcare Protea Day Clinic
39 Netcare Rand Hospital
40 Netcare Rehabilitation Hospital
41 Netcare Rosebank Hospital
42 Netcare St Annes Hospital
43 Netcare St Augustine's Hospital
44 Netcare Sunninghill Hospital
45 Netcare Sunward Park Hospital
46 Netcare The Bay Hospital
47 Netcare uMhlanga Hospital
48 Netcare Union Hospital
49 Netcare Unitas Hospital
50 Netcare Vaalpark Hospital
51 Netcare Waterfall City Hospital
52 Optiklin Eye Hospital
53 Pelonomi Private Hospital
54 Port Alfred Hospital
55 Settlers Hospital
56 UCT Private Academic Hospital
57 Universitas Private Hospital

1 Netcare Christiaan Barnard Memorial Hospital
2 Netcare Garden City Hospital
3 Netcare Milpark Hospital
4 Netcare St Augustine’s Hospital
5 Netcare Transplant Centre Garden City Hospital
6 Netcare Transplant Centre Jakaranda Hospital
7 Netcare Transplant Centre Milpark Hospital
8 Netcare Transplant Centre St Augustine's Hospital

- **مراکز درمانی کلیوی و دیالیز EDISON**

EDISON Renal & Dialysis Centers

http://edisondialysiscentre.co.za/#xl_xr_page_index

1 Edison Giyani Centre
2 Edison Hammanskraal Centre
3 Edison Mamelodi Centre
4 Edison Thohoyandou Centre

- **مراکز دیالیز Kwazulu**

Kwazulu Dialysis Centers

http://edisondialysiscentre.co.za/#xl_xr_page_index

1 Edison Giyani Centre
2 Edison Hammanskraal Centre
3 Edison Mamelodi Centre
4 Edison Thohoyandou Centre

- **مراکز دیالیز North West Dialysis**

North West Dialysis

1	North West Dialysis Hartswater	http://nwdialysis.co.za/
2	North West Dialysis Klerksdorp	http://www.medpages.co.za/sf/index.php?page=organisation&orgcode=254491
3	North West Dialysis Lichtenburg	http://nwdialysis.co.za/
4	North West Dialysis Viljoenskroon	20 Engelbrecht Street, Viljoenskroon, Free State

- **مراکز دیالیز Regional Renal Services**

Regional Renal Services

1	Regional Renal Services Harding	http://www.medpages.co.za/sf/index.php?page=organisation&orgcode=352940
2	Regional Renal Services Lusikisiki	http://www.medpages.co.za/sf/index.php?page=organisation&orgcode=317208

3	Regional Renal Services Matatiele	https://medpages.co.za/sf/index.php?page=organisation&orgcode=352941
4	Regional Renal Services Mthatha	http://www.medpages.co.za/sf/index.php?page=organisation&orgcode=352942

- **بیمارستانهای خصوصی Melomed Private Hospitals**

مراکز دیالیز Melomed Renal Care/MRC

با ۶ بیمارستان که در ۳ بیمارستان مرکز دیالیز دایر می باشد.

Melomed Private Hospitals

http://www.melomed.co.za/index.asp

http://www.melomed.co.za/ourhospitals.asp

1. Melomed Richards Bay
2. Melomed Tokai
3. Melomed Gatesville
4. Melomed Bellville
5. Melomed Mitchells Plain
6. Melomed Claremont Private Clinic

Melomed Renal Care/MRC

http://www.melomed.co.za/renalcare.asp

http://www.melomed.co.za/documents/adverts/MitchellsPlain-RenalCare-PeoplesPost.PDF

1. Melomed Gatesville
2. Melomed Bellville
3. Melomed Mitchells Plain

- **مراکز دیالیز Coastal Nephrology Centre**

Coastal Nephrology Centre

http://www.coastalnephrologycentre.co.za/greytown-renal-unit-opens-doors/

1	Coastal Nephrology Centre Greytown
2	Coastal Nephrology Centre Nongoma
3	Coastal Neprology Centre Ulundi

- **مراکز دیالیز Izinso**

Izinso Dialysis Services

http://www.izinsods.co.za/

https://www.medpages.co.za/sf/index.php?page=organisation&orgcode=345492

1 Izinso Dialysis Mafikeng
2 Izinso Dialysis Mafikeng

- **مراکز دیالیز MEREDIAC**

Medical Renal and Dialysis Centres/ MEREDIAC

http://www.merediac.co.za/centres-3/

1 Merediac Durdoc
2 Merediac Pinetown
3 Merediac Ethekwini Hospital

- **مراکز دیالیز Renal Care Team Inc**

Renal Care Team Inc

1 Renal Care Team Durdoc http://www.medpages.co.za/sf/index.php?page=organisation&orgcode=353360
2 Renal Care Team Kwamashu http://medpages.africa/sf/index.php?page=organisation&orgcode=328815

- **مراکز دیالیز Renalworx**

Renalworx Dialysis Centres

http://www.renalworx.co.za/

1 Renalworx Pretoria West
2 Renalworx Wilgers

- **مرکز دیالیز و پیوند کلیه دانشگاهی WDGMC**

University of the Witwatersrand (Wits University)
Wits Donald Gordon Medical Centre (WDGMC)

The first and only private teaching hospital training specialists and sub-specialists in South Africa, for South Africa.

http://www.dgmc.co.za/the-medical-centre

http://www.dgmc.co.za/highly-specialised-unit/transplant

1 Wits Donald Gordon Medical Centre
2 Wits Donald Gordon Medical Centre Transplant Division

- **بیمارستانهای خصوصی Lenmed Health**

با ۱۱ بیمارستان که در یک بیمارستان مرکز دیالیز دایر می باشد.

Lenmed Health Group

http://www.lenmedhealth.com/en/

GAUTENG
1 Ahmed Kathrada Private Hospital
2 Daxina Private Hospital
3 Randfontein Private Hospital
4 Zamokuhle Private Hospital
KWAZULU-NATAL
5 Ethekwini Hospital And Heart Centre
6 La Verna Private Hospital
7 Shifa Private Hospital
NORTHERN CAPE
8 Kathu Private Hospital
9 Royal Hospital and Heart Centre
BOTSWANA
10 Bokamoso Private Hospital
MOZAMBIQUE
11 Maputo Private Hospital

1 Randfontein Private Hospital Dialysis Unit http://www.lenmedhealth.com/en/hospitals/81-randfontein-private-hospital

● سایر مراکز دیالیز خصوصی

1.	Baobab Kidney Care - Randburg Dialysis	http://www.medpages.info/sf/index.php?page=organisation&orgcode=362678
2.	Chantel Van Rooyen Private	https://medpages.co.za/sf/index.php?page=organisation&orgcode=321638
3.	Dr Parag and Raghubir Kidney Care Centre	https://medpages.co.za/sf/index.php?page=organisation&orgcode=321638
4.	Ekuphileni Renal Centre Manguzi	https://medpages.co.za/sf/index.php?page=organisation&orgcode=323985
5.	Hazyview Dialysis Centre	https://www.medpages.info/sf/index.php?page=organisation&orgcode=210920
6.	Heidelberg Medical Centre Renal Unit	http://www.heidelbergchamber.org/listing/heidmed-medical-centre/
7.	Nephromed Kidney Centre Thohoyandou	https://medpages.co.za/sf/index.php?page=organisation&orgcode=361648
8.	Renomed Verulam Dialysis	http://medpages.africa/sf/index.php?page=organisation&orgcode=352574
9.	Rondebosch Dialysis Centre	http://rdcrenal.co.za/
10.	Sunshine Dialysis Unit	
11.	UCT Private Academic Hospital	http://www.ucthospital.co.za/
12.	Ultra Kidney Care Isipingo	http://medpages.africa/sf/index.php?page=organisation&orgcode=313133
13.	Verulam Dialysis Centre	http://www.medpages.co.za/sf/index.php?page=organisation&orgcode=353366
14.	Zeerust Renal Unit	http://www.medpages.info/sf/index.php?page=organisation&orgcode=368524&keywords=&keywords=Disease%20&%20Illness%20-%20Renal,South%20Africa,North%20West,Zeerust

● خدمات درمانی بیماریهای کلیوی و دیالیز برای کارمندان دولت

دولت آفریقای جنوبی خدمات درمانی بیماریهای کلیوی و دیالیز را برای کارمندان دولتی از طریق ارجاء به بهترین مراکز خصوصی تحت برنامه ای بنام **Government Employees Medical Schemes/GEMS** فراهم می نماید

https://www.gems.gov.za/en/members/providers/

https://www.gems.gov.za/en/members/Tools/-/media/D3C3D00A10A24776AF62A7252DCB5095.ashx

https://www.gems.gov.za/en/members/providers/-/media/B120E925A1174E95A4991893D0F81B8A.ashx

https://www.gems.gov.za/en/members/providers/-/media/2A23FAA3CCDB4DE1A15BEF02B5A62008.ashx

https://www.gems.gov.za/en/members/providers/-/media/9E3622DBEE0D4FAD9E0C017766F113CD.ashx

https://www.gems.gov.za/en/members/providers/-/media/5823BB440F2145F18765BFE966A777EA.ashx

https://www.gems.gov.za/en/members/providers/-/media/C22767DE37F342A78C559FE92F68DBB0.ashx

https://www.gems.gov.za/en/members/providers/-/media/F1FAF2A904984348AE9334307A61FC53.ashx

در آفریقای جنوبی، ارائه خدمات درمانی RRT در درجه اول بستگی دارد به اینکه آیا بیمار تحت پوشش بیمه درمانی است و یا در غیر این صورت آیا می تواند هزینه های مربوطه را شخصا پرداخت نماید یا خیر.

ظاهرا فقط بیماران ESKD/ESRD از طبقات مرفه (عمدتا سفید پوستان اروپایی تبار) که شخصا قادر به پرداخت هزینه های خدمات درمانی کلیوی و درمان استاندارد همودیالیز (سه بار در هفته) هستند و کارمندان دولت که تحت پوشش بیمه درمانی دولتی هستند (Government Employees Medical Schemes/GEMS) از این خدمات درمانی بهره مند می گردند و این در حالیست که اکثر بیماران کلیوی از نژادهای بومی و رنگین پوستان غیر بومی، بخصوص ساکنین مناطق روستائی و قبایلی که شامل بیش از ۸۴٪ جمعیت آفریقای جنوبی می گردند از خدمات درمانی کلیوی و درمان استاندارد همودیالیز (سه بار در هفته) محروم هستند.

دلایل این محرومیت در اکثر موارد ناشی از فقر؛ شامل شرایط نامناسب زندگی ، بیکاری و نبود آموزش و پرورش است که منجر به سهمیه بندی دیالیز به همراه بی عدالتی می گردد. درمطالعات سازمان بهداشت جهانی WHO در سال ۲۰۰۸ میلادی قید گردیده که احتمال دریافت خدمات درمانی RRT برای بیماران سفید تقریبا چهار برابر بیشتر از سایر اقوام این کشور بود و بر اساس مندرجات چکیده "گزارش وضعیت درمان بیماران کلیوی در آفریقای جنوبی در سال ۲۰۱۵ میلادی" که در سپتامبر ۲۰۱۷ میلادی منتشر گردیده[6] نیز این وضعیت از سال ۱۹۹۴ تا کنون به همین منوال بوده است.

- **ارائه دهندگان خدمات درمانی بیماریهای کلیوی و دیالیز در آفریقای جنوبی**

Private Facilities					Public Facilities
NRC	54	MRC	3		**30**
FMC	63	Coastal Nephrology	3		
B. Braun	33	Izinso Dialysis	2		
life healthcare	20	MEREDIAC	3		
Netcare	8	Renal Care Team Inc	2		
EDISON	4	Renalworx Dialysis	2		
Kwazulu	4	WDGMC	2		
North West	4	Lenmed Health	1		
Regional	4	Miscellaneous	14		
Total Private			**226**		
Total					**256**

توصیه می گردد حتی الامکان از چگونگی فعالیت و ظرفیت مراکز درمانی هایلایت شده و مشتریهای آنها کسب اطلاع گردد.

- **مراکز درمانی کلیوی و دیالیز EDISON**
- **مراکز دیالیز Kwazulu**
- **مراکز دیالیز North West Dialysis**
- **مراکز دیالیز Regional Renal Services**
- **مراکز دیالیز Coastal Nephrology Centre**
- **مراکز دیالیز Izinso**
- **مراکز دیالیز MEREDIAC**
- **مراکز دیالیز Renal Care Team Inc**
- **مراکز دیالیز Renalworx**

[6] South African Renal Registry Annual Report 2015

- **سایر مراکز دیالیز خصوصی**

SOUTH AFRICAN RENAL REGISTRY

Annual Report 2015

MR Davids, N Marais and JC Jacobs

African Journal of Nephrology
Official publication of the African Association of Nephrology
Volume 20, No 1, 2017, 201-213

SCIENTIFIC REPORTS AND GUIDELINES

South African Renal Registry Annual Report 2015

M Razeen Davids[1,2], Nicola Marais[2], Julian C Jacobs[2,3]
[1]Division of Nephrology, Stellenbosch University and Tygerberg Hospital, Cape Town, South Africa; [2]South African Renal Registry; [3]N1 City, Goodwood, Cape Town, South Africa.

ABSTRACT

The fourth annual report of the South African Renal Registry summarises the 2015 data on renal replacement therapy (RRT) for patients with end-stage renal disease (ESRD) in South Africa. The South African population increased to 54.96 million in 2015, from 54.00 million in 2014. In December 2015, the number of patients with ESRD who were treated with chronic dialysis or transplantation stood at 10 360, a prevalence of 189 per million population (pmp). The prevalence was 167 pmp in 2013 and 178 pmp in 2014. The increasing prevalence observed is due mainly to the increased numbers of patients accessing haemodialysis in the private sector. In the public sector, which serves 84% of the South African population, the prevalence of RRT (71.9 pmp in 2015) remains at levels close to those reported in 1994 so that the disparity in access continues to increase. The disparities between provinces remain, with Limpopo and Mpumalanga the most under-served, as do the disparities between ethnic groups, with Blacks being the most under-served group.

Keywords: renal registry; South Africa; haemodialysis; peritoneal dialysis; transplantation.

INTRODUCTION

The South African Renal Society has mandated the South African Renal Registry (SARR) to collect, analyse and publish information on the treatment of patients with end-stage renal disease (ESRD) in South Africa. We are pleased to present the fourth annual report of the SARR, which summarises the data on renal replacement therapy (RRT) for patients with ESRD in South Africa as at 31 December 2015.

Once again, we are indebted to all our colleagues as well as the provider companies and their staff for contributing data, and to our sponsors for their continued support. In particular, we appreciate the funding and support received from the National Department of Health.

METHODS

Registry platform

Since the inception of the SARR, our technology platform has undergone several major iterations. Our newest version is working well, and has made data entry simpler and faster. The platform has been developed using the Webdev programming environment (www.windev.com) and resides on a secure, dedicated, Windows 10 server at a leading South African internet hosting company. It runs Windows Internet Information Services (IIS) and uses the client/server version of HFSQL (formerly Hyperfile SQL) as its relational database management system. Data capturers interface with the central database via user-friendly web pages and can therefore access the SARR from any device that has internet access and a web browser (Google Chrome is recommended). Password protection ensures that doctors and treatment centres have access to their own data only. Data files are backed up daily using a specialist online backup company. Incremental backups of the registry application are also made daily and the full application is backed up weekly.

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Correspondence: Razeen Davids, mrd@sun.ac.za.

The platform is currently being expanded to accommodate the African Renal Registry and allow data capture by other African countries. Thus far, our colleagues in Ghana, Zambia and Burundi have joined the African Renal Registry and have stated entering data using our platform.

Definitions

ESRD and start date of RRT. ESRD refers to advanced chronic kidney disease (CKD), which is considered to be irreversible and which requires the initiation of renal replacement therapy. The start date is the date of first haemodialysis (HD), the date of the first peritoneal dialysis (PD) flushes or exchanges, or the date of pre-emptive transplantation (where there is no prior dialysis). For patients who are initially thought to have acute kidney injury (AKI) and are dialysed but who do not recover function and are then continued on chronic RRT, the start date is the date of the first dialysis, even though the diagnosis at that time was AKI and not ESRD.

Initial RRT modality. This is the intended first modality and should normally be the modality being used on day 91 of RRT. This means that someone who presents late and who is started on urgent HD but is soon established on PD will have PD recorded as the initial modality.

Changes in the responsible treating unit. This refers to a change in the dialysis unit, PD follow-up unit/clinic, or transplant follow-up unit/centre/practice. A transfer entry in the registry is required to record this. This should not be done for short-term transfers when the intention is that the patient will return to the "home" unit, e.g. for holiday dialysis, temporary transfer to a unit with isolation facilities, etc.

Primary renal diagnosis. Responsible nephrologists/physicians should assist their data capturers to ensure that this critical information is accurate. We are using the set of renal diagnosis codes of the ERA-EDTA [1] and have mapped all previous entries to these codes. If there is uncertainty about the renal diagnosis, as is often the case with patients who present late, then the primary renal diagnosis should be indicated as **"chronic kidney disease (CKD) – aetiology uncertain/unknown"**. In patients who present with ESRD, small kidneys and hypertension there should not be an automatic default to labelling such patients as having "chronic glomerulonephritis" or "hypertensive renal disease".

Chronic hypertensive nephropathy or malignant hypertensive nephropathy. This should be selected as the primary renal diagnosis if there is no reason to suspect that the hypertension is secondary to pre-existing renal disease. We suggest that the following criteria be met: hypertension known to precede renal dysfunction, left ventricular hypertrophy, proteinuria <2 g/day, and no evidence of other renal diseases [2,3].

Lost to follow-up. The SARR assumes that a functioning transplant is maintained unless there is evidence of a "transplant failure" or death. A dialysis modality is assumed to continue for one year from the date of the last registry entry, in the absence of evidence of death; thereafter the patient is considered lost to follow-up. Patients are also considered lost to follow-up one year after a "transplant failure" entry if no further entries are recorded.

Recovered renal function. These are patients who have been initiated on chronic HD/PD and who no longer require dialysis. The period of dialysis-free recovery must persist for at least 90 days. If the period of recovery is less than 90 days and dialysis is restarted, there should be no END entry and dialysis is considered to have been continuous. If the period of recovery exceeds 90 days and the patient restarts RRT (even within the same year), there should be an END entry for the initial period of RRT and then a new entry recorded for the patient when he/she starts the second period of RRT, i.e., there will be two registry entries for the same patient.

Ethics approval

The SARR operates as a longitudinal study with ethics approval from the Health Research Ethics Committee of Stellenbosch University (reference no. N11/01/028). This is renewed annually upon submission of a progress report. A waiver of individual informed consent has been granted, and the approval includes country-wide data collection on adults and children, public and private sectors, and the tapping of various data sources to improve the accuracy and completeness of data. These include records available through doctors' practices, dialysis and transplant centres, provider companies, and medical aid funds.

RESULTS

South Africa in 2015

According to the Stats SA mid-year estimates for 2015 [4], the population of South Africa increased by nearly one million from the previous year to 54.96 million people. There was a slight female predominance (51.1%). Black/African citizens constituted 80.5% of the population, with people of mixed ethnicity (Coloured) making up 8.8%, Whites 8.3% and Indians/Asians 2.5%. The province of Gauteng had the largest population, followed by KwaZulu-Natal.

South Africa is classified as an upper-middle income country by the World Bank, with a GNI per capita by the Atlas method (current US$) of $6 090 and by the purchasing

power parity (PPP) method (current international US$) of $12 900. Most of the population (84%) relies on the public health sector for services, with only a small proportion (16%) having medical insurance and accessing private sector healthcare [5].

Life expectancy at birth for 2015 was estimated at 60.6 years for males and 64.3 years for females. The infant mortality rate for 2015 was estimated at 34.4 per 1 000 live births. The estimated overall HIV prevalence rate was approximately 11.2%, and 16.6% for adults aged 15–49 [4].

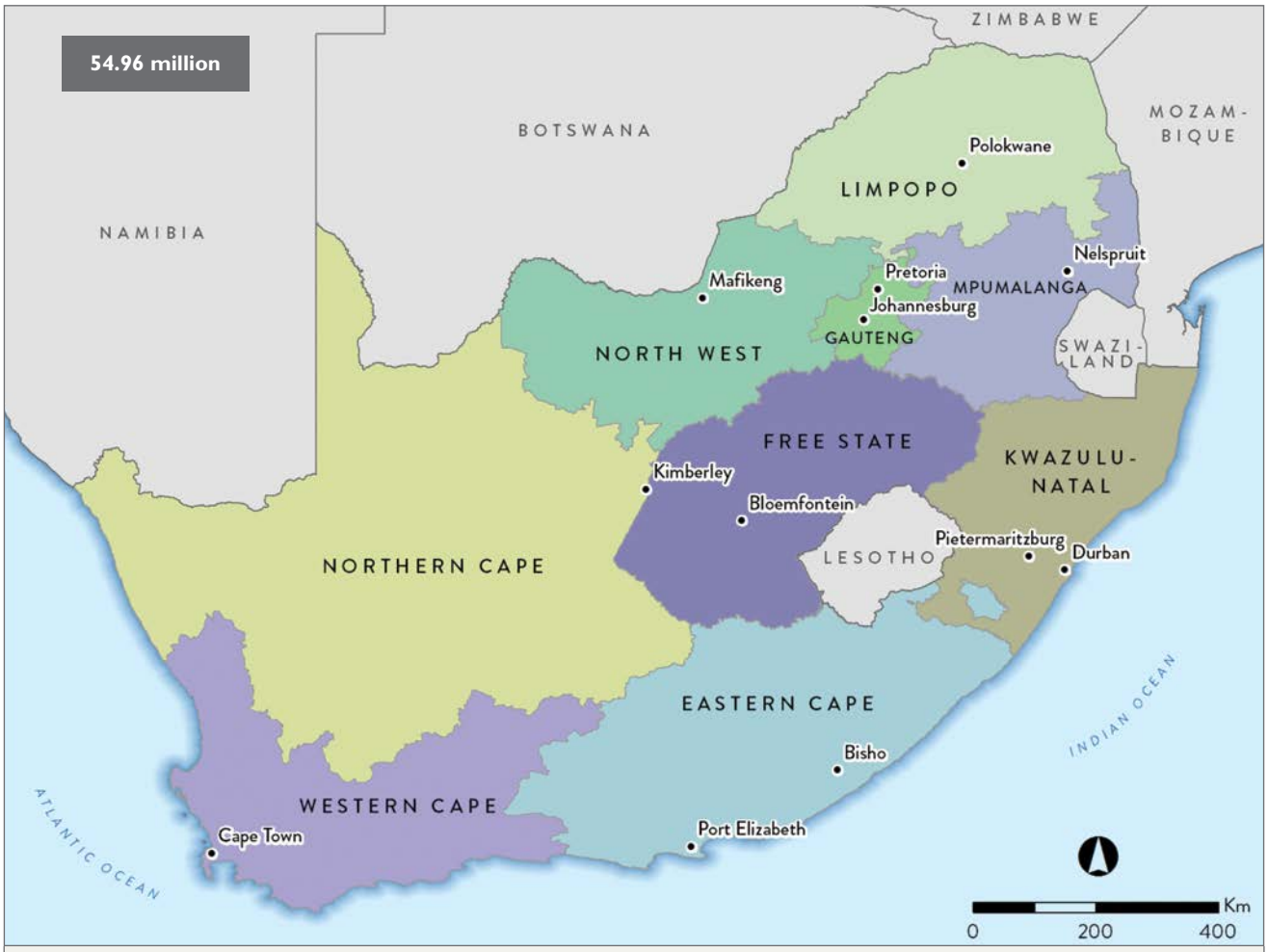


Figure 1. Provinces and major cities of South Africa.

Table 1. Population data by ethnic group.

Population group	million	%
Black	44.23	80.5
Coloured	4.83	8.8
Indian/Asian	1.36	2.5
White	4.53	8.3
Total	**54.96**	**100**

Table 2. Population data by province.

Province	million	%
Eastern Cape (EC)	6.92	12.6
Free State (FS)	2.82	5.1
Gauteng (GT)	13.20	24.0
KwaZulu-Natal (KZN)	10.92	19.9
Limpopo (LP)	5.73	10.4
Mpumalanga (MP)	4.28	7.8
North West (NW)	3.71	6.7
Northern Cape (NC)	1.19	2.2
Western Cape (WC)	6.20	11.3
Total	**54.96**	**100**

Treatment centres for dialysis and transplantation

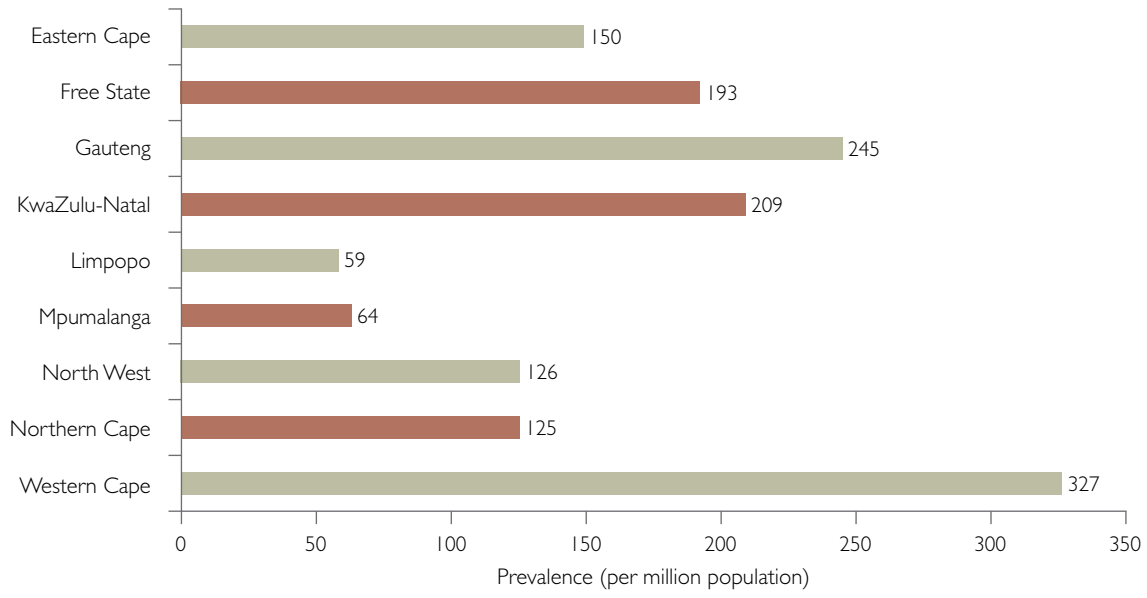
An additional 33 treatment centres, 32 of these in the private sector, contributed data for this 2015 report. The total number of centres in 2015 was 258; 228 (88.4%) of these were privately owned. One privately owned unit in Limpopo was established as a public–private partnership on the premises of a government hospital to serve public sector patients.

Table 3. Number of centres by province and sector.

Sector	EC	FS	GT	KZN	LP	MP	NW	NC	WC	All
Public	3	6	7	5	0	0	3	1	5	30
Private	19	11	69	58	11	10	14	4	32	228
Total	**22**	**17**	**76**	**63**	**11**	**10**	**17**	**5**	**37**	**258**

Prevalence of renal replacement therapy

The total number of patients on RRT on 31 December 2015 was 10 360. With a population of 54.96 million, this is a prevalence of 189 per million population (pmp). The prevalence for 2014 was 178 pmp. In 2015, the province with the highest patient numbers was Gauteng, followed by KwaZulu-Natal and the Western Cape, while the province with the highest prevalence was the Western Cape, followed by Gauteng and KwaZulu-Natal.



Province	EC	FS	GT	KZN	LP	MP	NW	NC	WC	All
Patients	1 040	544	3 238	2 286	337	273	466	148	2 028	10 360

Figure 2. Prevalence and numbers of patients on RRT by province.

The number of patients treated in the public sector in 2015 remained low, with a prevalence of 71.9 pmp. This is lower than the rate of 72.6 pmp reported for 2014. In the private sector, the rate increased from 716.3 pmp in 2014 to 799.3 pmp in 2015. Denominators for prevalence calculations are based on the Stats SA mid-term estimates [4] and the Council for Medical Schemes Annual Report [5]. Medical aid beneficiaries who are unclassified with respect to province were allocated to provinces in proportion to the numbers of beneficiaries in each province.

Table 4. RRT prevalence by healthcare sector.

	Public	Private
Population in millions	46.15	8.81*
ESRD patients on treatment	3 318	7 042
Treatment rate (pmp)	71.9	799.3

*Council for Medical Schemes Annual Report 2015/16

Table 4. Numbers of patients by sector and province.

Sector	EC	FS	GT	KZN	LP	MP	NW	NC	WC	All
Public	315	227	958	630	72	17	161	82	856	3 318
Private	725	317	2 280	1 656	265	256	305	66	1 172	7 042
Total	**1 040**	**544**	**3 238**	**2 286**	**337**	**273**	**466**	**148**	**2 028**	**10 360**

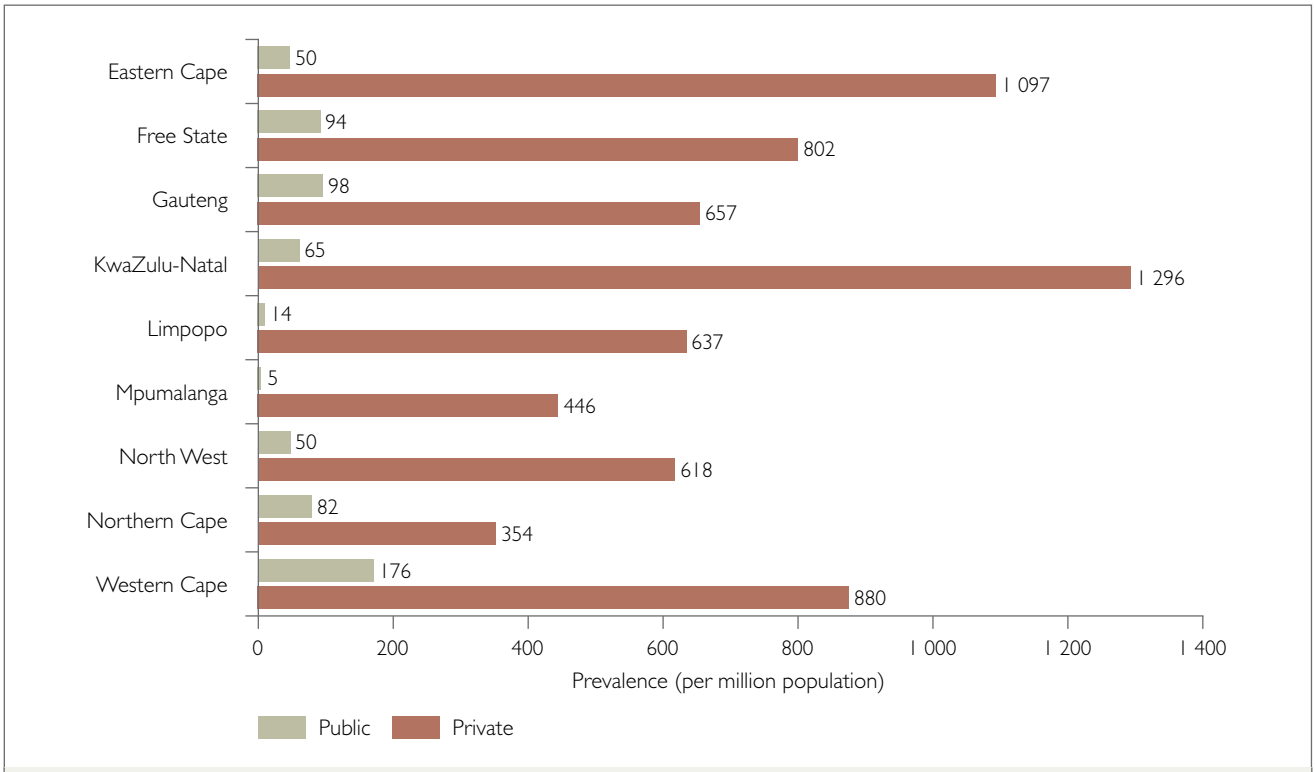
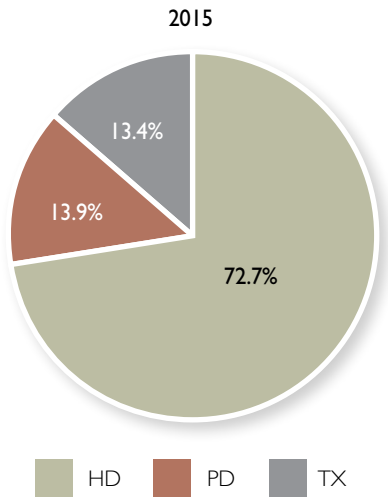


Figure 3. Prevalence of RRT by province and sector.

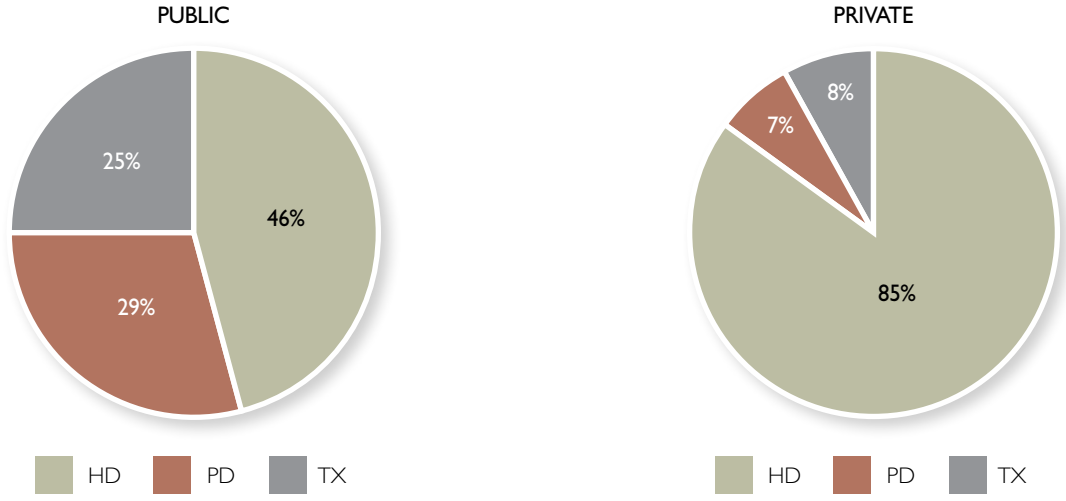
Treatment modality

Of the 10 360 patients on RRT in 2015, 13.4% had a functioning renal transplant. Of the 8 969 patients on dialysis, 16.1% were on peritoneal dialysis and 83.9% on haemodialysis. Most of the transplant and peritoneal dialysis patients are in the public sector; the private sector has much lower proportions of patients on these RRT modalities.



Modality	Patients	%
Haemodialysis	7 529	72.7
Peritoneal dialysis	1 440	13.9
Transplant	1 391	13.4

Figure 4. Distribution of patients by treatment modality.



Treatment modality	Public sector		Private sector	
	Patients	%	Patients	%
Haemodialysis	1 517	45.7	6 012	85.4
Peritoneal dialysis	963	29.0	477	6.8
Transplant	838	25.3	553	7.9

Figure 5. RRT modality by sector.

Data on new kidney transplants have been supplied by the South African Organ Donor Foundation (http://www.odf.org.za/). The decline in the number of new transplants seen in 2014 (219 transplants) appears to have reversed, with 254 transplants performed in 2015. This included 3 kidney-liver and 3 kidney-pancreas transplants. No transplants were performed in public sector hospitals in the provinces of KwaZulu-Natal and the Free State. The kidney transplant rate for 2015 was 4.6 pmp.

Table 5. New kidney transplants in 2015.

	Deceased donor		Living related		Living unrelated		Total
	Child	Adult	Child	Adult	Child	Adult	
Western Cape - Public	8	34	3	6	0	9	60
Western Cape - Private	0	19	0	21	0	16	56
Gauteng - Public	2	32	0	1	0	0	35
Gauteng - Private	5*	45*	1	11	0	14	76
KwaZulu-Natal - Public	0	0	0	0	0	0	0
KwaZulu-Natal - Private	0	9	0	9	0	5	23
Free State - Public	0	0	0	0	0	0	0
Free State - Private	0	4	0	0	0	0	4
Total	**15**	**143**	**4**	**48**	**0**	**44**	**254**

Child = recipient <18 years; Adult = recipient 18 years and older.
*Includes 2 child and 1 adult kidney-liver transplants, and 3 adult kidney-pancreas transplants. Data supplied by the SA Organ Donor Foundation.

Demographic and clinical data

The mean age of the patients on RRT was 51.3 ± 15.0 years and 59.3% were male. Because of the rationing and selection criteria applied in South African public sector hospitals [6], patients treated there are much younger than those treated in the private sector (43.4 ± 13.5 versus 55.0 ± 14.3 years). Just more than half of the patients were Black. However, the prevalence was still lowest in Blacks (125 pmp) and highest in Indians/Asians (927 pmp).

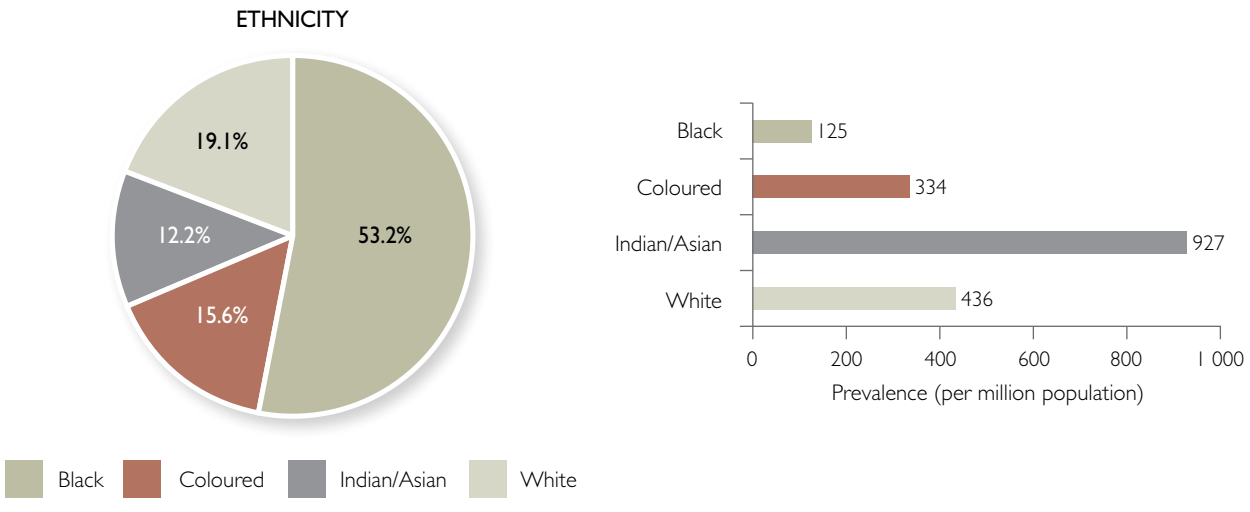


Figure 6. RRT patient numbers and prevalence by ethnicity.

During the 2015 data collection process, we recoded many patients' primary renal diagnoses (PRD) to be in line with the new EDTA-ERA coding system [1]. Taking a conservative approach, we indicated the PRD as "chronic kidney disease/chronic renal failure – aetiology uncertain/unknown" when it seemed that there was doubt about the diagnosis. For example, because of the links to ICD10 codes in previous versions of the SARR, many patients had a PRD of "chronic renal failure – includes: chronic uraemia, diffuse sclerosing glomerulonephritis" and these had been grouped under glomerular disease. They have now been coded as "uncertain/unknown" and this group is now the largest, followed by hypertensive renal disease and diabetic nephropathy.

Table 6. Most commonly reported causes of ESRD.

	% of total
Uncertain or not stated	34.1
Hypertensive renal disease	33.7
Diabetic nephropathy	14.4
Glomerular disease	9.5
Cystic kidney disease	2.9
Obstruction and reflux	1.5

Of the 8 002 patients with data on diabetes status, 51.5% were diabetic, with a much higher percentage of diabetic patients in the private than in the public sector (58.0% versus 38.2%). These percentages are substantially higher than those we have reported in the past. One reason for this may be that, for this report, we considered patients as diabetic if any previous entry indicated a patient as being diabetic even when the latest annual assessment had an entry for diabetes status as "unknown". We also classified patients as diabetic when the PRD was given as diabetic nephropathy. In addition, we are concerned that data capturers may have found the options for diabetes on our online form confusing and selected "diabetes (type unknown") instead of "unknown" when they were not sure of the diabetes status.

The seropositive rate for hepatitis B virus was 1.3% (95 of 7 056 patients), for hepatitis C virus 1.1% (65 of 6 178 patients) and for HIV 9.4% (607 of 6 464 patients).

DISCUSSION

The number of patients on RRT in South Africa has continued to increase steadily, and stood at 10 360 in December 2015, a prevalence of 189 pmp. In 2014, the prevalence was 178 pmp. As before, this growth was mainly due to an increase in the number of patients treated with haemodialysis in the private healthcare sector. There is no evidence of any real growth in public sector access to RRT and treatment rates over the past few years remain similar to those seen in 1994. The progressive realisation of access to RRT, which is promised by the South African Constitution, is not happening, and this is cause for great concern.

It is vital that a complete picture of renal replacement therapy across the country is obtained and we therefore need the support of all treatment centres to ensure the inclusion of all patients. Our next round of data collection, for December 2016, is currently under way. Treatment centres should re-check their patients' core data, such as demographic information, the date on which treatment was started, the primary renal diagnosis and diabetes status. Any changes in treatment modality, transfers to another centre, and deaths during the year 2016 need to be recorded.

During the course of the next year we will audit and improve the accuracy of our data on primary renal diagnosis and diabetes status, and we will continue to adapt our platform to accommodate countries that have joined the African Renal Registry initiative.

Acknowledgements

The SARR is a project of the South African Renal Society (http://www.sa-renalsociety.org/) which is chaired by Prof Razeen Davids and Dr Julian Jacobs.

We thank the following for contributing to the success of our 2015 data collection and annual report:

The doctors, nurses, technologists, support staff and management of participating treatment centres – these centres are listed in Appendix 1.

Funding and logistical support was received from:

- National Department of Health
- Actor Pharma
- Adcock Ingram Critical Care (Renal Division)
- Amgen
- Janssen Pharmaceutica
- National Kidney Foundation of South Africa
- National Renal Care
- Roche Pharmaceuticals
- Stellenbosch University

Our national data manager, Nicola Marais, and data capturer, Suzan Baloyi.

Supplementary materials

The figures in this report are available as PowerPoint slides via the supplementary materials.

Usage of this report

Extracts from this report, and the accompanying PowerPoint slides, may be freely used and reproduced without permission provided the source is acknowledged. Suggested citation: Davids MR, Marais N, Jacobs JC. South African Renal Registry Annual Report 2015. African Journal of Nephrology. 2017; 20(1):201-213. Previous reports are available at http://www.sa-renalsociety.org/registry.asp.

Conflict of interest

None to declare.

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APPENDIX 1: PARTICIPATING TREATMENT CENTRES

EASTERN CAPE		
Public	**Private**	**Private**
Frere Hospital	Jeffreys Bay Kidney and Dialysis Centre (FMC)	NRC Port Elizabeth HD
Livingstone Hospital	Life East London Private Hospital	NRC Port Elizabeth PD
Nelson Mandela Academic Hospital	Life New Mercantile Hospital	NRC Queenstown
	NRC Butterworth	NRC Uitenhage
	NRC East London HD	Port Elizabeth Kidney and Dialysis Centre (FMC)
	NRC East London PD	Regional Renal Services Harding
	NRC King Williamstown	Regional Renal Services Lusikisiki
	NRC Kwadwesi	Regional Renal Services Matatiele
	NRC Mdantsane	Regional Renal Services Mthatha
	NRC Mthatha	

FREE STATE		
Public	**Private**	**Private**
Boitumelo Regional Hospital (Kroonstad)	B. Braun Avitum Bethlehem (Hoogland)	NRC Bloemfontein PD
Bongani Regional Hospital (Welkom)	B. Braun Avitum Bloemfontein	NRC Kroonstad
Dihlabeng Regional Hospital (Bethlehem)	B. Braun Avitum Welkom	NRC Pelonomi
Mofumahadi Manapo Mopeli Hospital (Qua Qua)	Bloemfontein Kidney and Dialysis Centre (FMC)	Sasolburg Kidney and Dialysis Centre (FMC)
Pelonomi Regional Hospital	Life Rosepark Hospital	Universitas Private Hospital
Universitas Academic Hospital	NRC Bloemfontein HD	

GAUTENG		
Public	**Private**	**Private**
Charlotte Maxeke Johannesburg Academic Hospital	Arcadia Kidney and Dialysis Centre (FMC)	Life Groenkloof Hospital
Chris Hani Baragwanath Hospital	B. Braun Avitum Lakeview (Benoni)	Life The Glynnwood Hospital
Dr George Mukhari Hospital	B. Braun Avitum Pretoria (Kloof)	Life Wilgeheuwel Hospital
Helen Joseph Hospital	B. Braun Avitum Pretoria (Urology Hospital)	Morningside Children's Kidney Treatment Centre
Leratong Hospital	B. Braun Avitum Sandton	Morningside Kidney and Dialysis Centre (FMC)
Sebokeng Hospital	B. Braun Avitum Vanderbijlpark (Emfuleni)	Morula Kidney and Dialysis Centre (FMC)
Steve Biko Academic Hospital	B. Braun Avitum Vereeniging (Midvaal)	Naledi Kidney and Dialysis Centre (FMC)
	Baobab Kidney Care - Randburg Dialysis	Netcare Transplant Centre Garden City Hospital
	Edison Hammanskraal Centre	Netcare Transplant Centre Jakaranda Hospital
	Edison Mamelodi Centre	Netcare Transplant Centre Milpark Hospital
	Fordsburg Kidney and Dialysis Centre (FMC)	NRC Akasia
	Groenkloof Kidney and Dialysis Centre (FMC)	NRC Alberton
	Harmelia Kidney and Dialysis Centre (FMC)	NRC Arcadia
	Heidelberg Medical Centre Renal Unit	NRC Johannesburg PD
	Hibiscus Kidney and Dialysis Centre (FMC)	NRC Krugersdorp
	Izinso Soshanguwe Clinic	NRC Lenasia (Lenmed)
	Kempton Kidney and Dialysis Centre (FMC)	NRC Lenasia South (Daxina)
	Lenasia Kidney and Dialysis Centre (FMC)	NRC Linksfield
	Lesedi Kidney and Dialysis Centre (FMC)	NRC Lyttleton
	Life Bedford Gardens Hospital	NRC Mayfair
	Life Brenthurst Hospital	NRC Montana
	Life Carstenhof Hospital	NRC Mulbarton
	Life Fourways Hospital	NRC Olivedale

FMC = Fresenius Medical Care, MRC = Melomed Renal Care, NRC = National Renal Care, LRC = Lenmed Renal Centre

APPENDIX 1: PARTICIPATING TREATMENT CENTRES continued

GAUTENG cont.		
Public	**Private**	**Private**
	NRC Parktown West	Renalworx Pretoria West
	NRC Pretoria East	Renalworx Wilgers
	NRC Pretoria PD	Sunshine Dialysis Unit
	NRC Rynfield	Tshepo-Themba Kidney and Dialysis Centre (FMC)
	NRC Sebokeng	Tshwane Kidney and Dialysis Centre (FMC)
	NRC Sedibeng	Vaal Kidney and Dialysis Centre (FMC)
	NRC Sunninghill	Vosloorus Kidney and Dialysis Centre (Clinix)
	NRC Sunward Park	Waverley Kidney and Dialysis Centre (FMC)
	NRC Waterfall	Westrand Kidney and Dialysis Centre (FMC)
	Pretoria Kidney and Dialysis Centre (FMC)	Wits Donald Gordon Kidney and Dialysis Centre (FMC)
	Randfontein Kidney and Dialysis Centre (FMC)	Wits Donald Gordon Medical Centre Transplant Division
	Randfontein Private Hospital Dialysis Unit	

KWAZULU-NATAL		
Public	**Private**	**Private**
Addington Hospital	B. Braun Avitum Dundee	Mount Edgecombe Kidney and Dialysis Centre (FMC)
Greys Hospital	B. Braun Avitum Howick	Netcare Transplant Centre St Augustine's Hospital
Inkosi Albert Luthuli Hospital	B. Braun Avitum Newcastle	Newcastle Kidney and Dialysis Centre (FMC)
King Edward VIII Hospital	B. Braun Avitum Pietermaritzburg	NRC Athlone
Ngwelezana Hospital	B. Braun Avitum Scottburgh	NRC Ballito
	B. Braun Avitum Vryheid	NRC Berea
	Chatsworth Kidney and Dialysis Centre (FMC)	NRC Chatsworth
	Coastal Nephrology Centre Greytown	NRC Durban PD
	Coastal Nephrology Centre Nongoma	NRC Gateway
	Coastal Neprology Centre Ulundi	NRC Hillcrest
	Dr Parag and Raghubir Kidney Care Centre	NRC Ladysmith
	Durban Kidney and Dialysis Centre (FMC)	NRC Margate
	Ekuphileni Renal Centre Manguzi	NRC Pietermaritzburg CBD
	Empangeni Kidney and Dialysis Centre (FMC)	NRC Pietermaritzburg PD
	Ethekwini Kidney and Dialysis Centre (FMC)	NRC Pinetown
	Kokstad Kidney and Dialysis Centre (FMC)	NRC Richards Bay
	Kwazulu Dialysis Chatsmed Renal Unit	NRC Umhlanga
	Kwazulu Dialysis Shifa Renal Unit	Pinetown Kidney and Dialysis Centre (FMC)
	Kwazulu Dialysis Umlazi Megacity Renal Unit	Port Shepstone Kidney and Dialysis Centre (FMC)
	Kwazulu Dialysis Westville Renal Unit	Renal Care Team Durdoc
	Life Chatsmed Hospital	Renal Care Team Kwamashu
	Life Empangeni Hospital	Renomed Verulam Dialysis
	Life Entabeni Hospital	Richards Bay Kidney and Dialysis Centre (FMC)
	Life Hilton Hospital	Stanger Kidney and Dialysis Centre (FMC)
	Life Mount Edgecombe Hospital	Ultra Kidney Care Isipingo
	Life Westville Hospital	Umhlanga Kidney and Dialysis Centre (FMC)
	Merediac Durdoc	Verulam Dialysis Centre
	Merediac Pinetown	Victoria Kidney and Dialysis Centre (FMC)
	Mount Edgecombe DCG	Vryheid Kidney and Dialysis Centre (FMC)

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APPENDIX 1: PARTICIPATING TREATMENT CENTRES continued

LIMPOPO		
Public	**Private**	**Private**
	B. Braun Avitum Louis Trichardt	Edison Thohoyandou Centre
	B. Braun Avitum Mokopane	Nephromed Kidney Centre Thohoyandou
	B. Braun Avitum Polokwane	NRC Polokwane
	B. Braun Avitum Tzaneen	NRC Venda
	Chantel Van Rooyen Private	Polokwane Kidney and Dialysis Centre (FMC)
	Edison Giyani Centre	

MPUMALANGA		
Public	**Private**	**Private**
	B. Braun Avitum Ermelo	Hazyview Dialysis Centre
	B. Braun Avitum Nelspruit	Life Midmed Hospital
	B. Braun Avitum Trichardt	Middelburg Kidney and Dialysis Centre (FMC)
	B. Braun Avitum Witbank	Mpumalanga Kidney and Dialysis Centre (FMC)
	Emalahleni Kidney and Dialysis Centre (FMC)	NRC Nelspruit

NORTH WEST		
Public	**Private**	**Private**
Job Shimankana Tabane Hospital	B. Braun Avitum Vryburg	North West Dialysis Lichtenburg
Klerksdorp Hospital	Brits Kidney and Dialysis Centre (FMC)	North West Dialysis Viljoenskroon
Mafikeng Hospital	Carletonville Kidney and Dialysis Centre (FMC)	NRC Rustenberg
	Izinso Dialysis Mafikeng	NRC Rustenberg PD
	Mafikeng Kidney and Dialysis Centre (FMC)	Potchefstroom Kidney and Dialysis Centre (FMC)
	North West Dialysis Hartswater	Rustenburg Kidney and Dialysis Centre (FMC)
	North West Dialysis Klerksdorp	Zeerust Renal Unit

NORTHERN CAPE		
Public	**Private**	**Private**
Kimberley Hospital	B. Braun Avitum Kimberley	NRC Kimberley
	B. Braun Avitum Upington	NRC Kimberley PD

WESTERN CAPE		
Public	**Private**	**Private**
George Hospital	Athlone Kidney and Dialysis Centre (FMC)	NRC Blaauwberg
Groote Schuur Hospital	B. Braun Avitum Cape Gate	NRC Cape Town CBD
Red Cross War Memorial Children's Hospital	B. Braun Avitum Mossel Bay	NRC Cape Town PD
Tygerberg Hospital	B. Braun Avitum Oudtshoorn	NRC George
Worcester Hospital	B. Braun Avitum Worcester	NRC Goodwood
	Cape Town Kidney and Dialysis Centre (FMC)	NRC Kuilsriver
	George Kidney and Dialysis Centre (FMC)	NRC Paarl
	Hermanus Kidney and Dialysis Centre (FMC)	NRC Plumstead
	Life Knysna Hospital	NRC Vredenburg
	Life Vincent Pallotti Hospital	Paardevlei Kidney and Dialysis Centre (FMC)
	Life Vincent Pallotti Hospital Paediatrics	Panorama Kidney and Dialysis Centre (FMC)
	MRC Gatesville HD	Rondebosch Dialysis Centre
	MRC Gatesville PD	Stellenbosch Kidney and Dialysis Centre (FMC)
	MRC Mitchells Plain	UCT Kidney and Dialysis Centre (FMC)
	MRC Tokai	UCT Private Academic Hospital
	Netcare Christiaan Barnard Memorial Hospital	Winelands Kidney and Dialysis Centre (FMC)

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APPENDIX 1: PARTICIPATING TRANSPLANT CENTRES

FREE STATE	
Public	**Private**
Universitas Academic Hospital	Universitas Private Hospital

GAUTENG	
Public	**Private**
Charlotte Maxeke Johannesburg Academic Hospital	Netcare Garden City Hospital
Steve Biko Academic Hospital	Netcare Milpark Hospital
	Wits Donald Gordon Medical Centre

KWAZULU-NATAL	
Public	**Private**
Inkosi Albert Luthuli Hospital	Netcare St Augustine's Hospital

WESTERN CAPE	
Public	**Private**
Groote Schuur Hospital	Netcare Christiaan Barnard Memorial Hospital
Red Cross War Memorial Children's Hospital	UCT Private Academic Hospital
Tygerberg Hospital	

SOUTH AFRICAN RENAL REGISTRY
Annual Report 2016

MR Davids, T Jardine, N Marais and JC Jacobs

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SCIENTIFIC REPORTS AND GUIDELINES

South African Renal Registry Annual Report 2016

M Razeen Davids[1,2], Thabiet Jardine[1,2], Nicola Marais[2], Julian C Jacobs[2,3]
[1]Division of Nephrology, Stellenbosch University and Tygerberg Hospital, Cape Town, South Africa; [2]South African Renal Registry; [3]N1 City, Goodwood, Cape Town, South Africa.

ABSTRACT

The fifth annual report of the South African Renal Registry summarises the 2016 data on renal replacement therapy (RRT) for patients with end-stage renal disease (ESRD) in South Africa. In December 2016, the number of patients with ESRD who were treated with chronic dialysis or transplantation stood at 10 257, a prevalence of 183 per million population (pmp). The growing prevalence observed since the registry was established is due mainly to the increasing numbers of patients accessing haemodialysis in the private sector. In the public sector, which serves 84% of the South African population, the prevalence of RRT (68 pmp) has dipped below the level reported for 1994, so that the disparity in access continues to increase. The disparities between provinces remain, with Limpopo and Mpumalanga the most under-served, as do the disparities between ethnic groups, with Blacks being the most under-served group.

Keywords: renal registry; South Africa; haemodialysis; peritoneal dialysis; transplantation.

INTRODUCTION

The South African Renal Registry (SARR) collects, analyses and publishes information on the treatment of patients with end-stage renal disease (ESRD) in South Africa on behalf of the South African Renal Society. This is the fifth consecutive annual report published by the SARR, which summarises the December 2016 data on renal replacement therapy (RRT) for patients with ESRD in South Africa.

METHODS

Registry platform

Since the inception of the SARR, our technology platform has undergone several major iterations, all aimed at making data entry simpler and faster. Our current platform has been developed using the Webdev programming environment (www.windev.com) and resides on a secure, dedicated, Windows 10 server at a leading South African internet hosting company. It runs Windows Internet Information Services (IIS) and uses the client/server version of HFSQL (formerly Hyperfile SQL) as its relational database management system. Data-capturers interface with the central database via user-friendly web pages from any device that has internet access. Password protection ensures that treatment centres have access to their own data only. Data files are backed up daily using a specialist online backup company. Incremental backups of the registry application are also made daily and the full application is backed up weekly.

Over the past two years, the technology platform of the SARR has been expanded to serve as the basis for the newly-established African Renal Registry. Burundi, Ghana, Kenya and Zambia have formally joined the African Renal Registry and have started data collection with the aid of our platform [1,2].

Definitions

ESRD and start date of RRT. ESRD refers to advanced, irreversible, chronic kidney disease (CKD) which requires the initiation of RRT. The start date is the date of first haemodialysis (HD), the date of the first peritoneal

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Correspondence: Razeen Davids, mrd@sun.ac.za.

dialysis (PD) flushes or exchanges, or the date of pre-emptive transplantation (where there is no prior dialysis). For patients who are initially thought to have acute kidney injury (AKI) and are dialysed but who do not recover function and then continue RRT, the start date is the date of the first dialysis, even though the diagnosis at that time was AKI and not ESRD.

Initial RRT modality. This is the intended first modality and should normally be the modality being used on day 91 of RRT. This means that someone who presents late and who is started on urgent HD but is soon established on PD, will have PD recorded as the initial modality.

Changes in the responsible treating unit. This refers to a change in the dialysis unit, PD follow-up unit/clinic, or transplant follow-up unit/centre/practice. A transfer entry in the registry is required to record this. This should not be done for short-term transfers when the intention is that the patient will return to the "home" unit, e.g. for holiday dialysis, temporary transfer to a unit with isolation facilities, etc.

Primary renal diagnosis. Responsible nephrologists/physicians should assist their data-capturers to ensure that this critical information is accurate. We are using the set of renal diagnosis codes of the ERA-EDTA [3] and have mapped all previous entries to these codes. If there is uncertainty about the renal diagnosis, as is often the case with patients who present late, then the primary renal diagnosis should be indicated as **"chronic kidney disease (CKD) – aetiology uncertain/unknown"**. In patients who present with ESRD, small kidneys and hypertension there should not be an automatic default to labelling such patients as having "chronic glomerulonephritis" or "hypertensive renal disease".

Chronic hypertensive nephropathy or malignant hypertensive nephropathy. This should be selected as the primary renal diagnosis if there is no reason to suspect that the hypertension is secondary to pre-existing renal disease. We suggest that the following criteria be met: hypertension known to precede renal dysfunction, left ventricular hypertrophy, proteinuria <2 g/day, and no evidence of other renal diseases [4,5].

Lost to follow-up. The SARR assumes that a functioning transplant is maintained unless there is evidence of a "transplant failure" or death. A dialysis modality is assumed to continue for one year from the date of the last registry entry, in the absence of evidence of death; thereafter, the patient is considered lost to follow-up. Patients are also considered lost to follow-up one year after a "transplant failure" entry if no further entries are recorded.

Recovered renal function. These are patients who have been initiated on chronic HD/PD and who no longer require dialysis. The period of dialysis-free recovery must persist for at least 90 days. If the period of recovery is less than 90 days and dialysis is restarted, there should be no END entry and dialysis is considered to have been continuous. If the period of recovery exceeds 90 days and the patient restarts RRT (even within the same year), there should be an END entry for the initial period of RRT and then a new entry recorded for the patient when he/she starts the second period of RRT, i.e., there will be two registry entries for the same patient.

Laboratory methods

Assays for serum albumin concentrations by the different laboratories all have reference ranges of 35–52 g/L. In the public sector, the National Health Laboratory Service (NHLS) uses the bromocresol green (BCG) method on Roche platforms. In the private sector, Lancet Laboratories uses BCG on Roche platforms, Ampath Laboratories uses BCG on Abbott Architect platforms, and PathCare uses BCG on Beckman platforms.

Ethics approval

The SARR operates as a longitudinal study with ethics approval from the Health Research Ethics Committee of Stellenbosch University (reference no. N11/01/028). This is renewed annually upon submission of a progress report. A waiver of individual informed consent has been granted, and the approval includes country-wide data collection on adults and children, public and private sectors, and the tapping of various data sources to improve the accuracy and completeness of data. These include records available through doctors' practices, dialysis and transplant centres, provider companies, and medical aid funds.

RESULTS

South Africa in 2016

According to the Stats SA mid-year estimates for 2016 [6], the population of South Africa increased by nearly one million from the previous year, to 55.91 million people. The province of Gauteng is home to almost one-quarter of the population (24.1%). There is a slight female predominance (51.0%). Black/African citizens constitute 80.7% of the population, with people of mixed ethnicity (Coloured) making up 8.8%, Whites 8.1% and Indians/Asians 2.5%.

South Africa is classified as an upper-middle-income country by the World Bank, with a GNI per capita by the Atlas method (current US$) of $5 490 and by the purchasing power parity (PPP) method (current international US$) of $12 880. Most of the population (84%) rely on the

public health sector for services, with only a small proportion (16%) having medical insurance and accessing private sector healthcare [7].

Life expectancy at birth for 2016 is estimated at 59.7 years for males and 65.1 years for females. The infant mortality rate for 2016 is estimated at 33.7 per 1 000 live births. The estimated overall HIV prevalence is approximately 12.7%, and 18.9% for adults aged 15–49 [6].

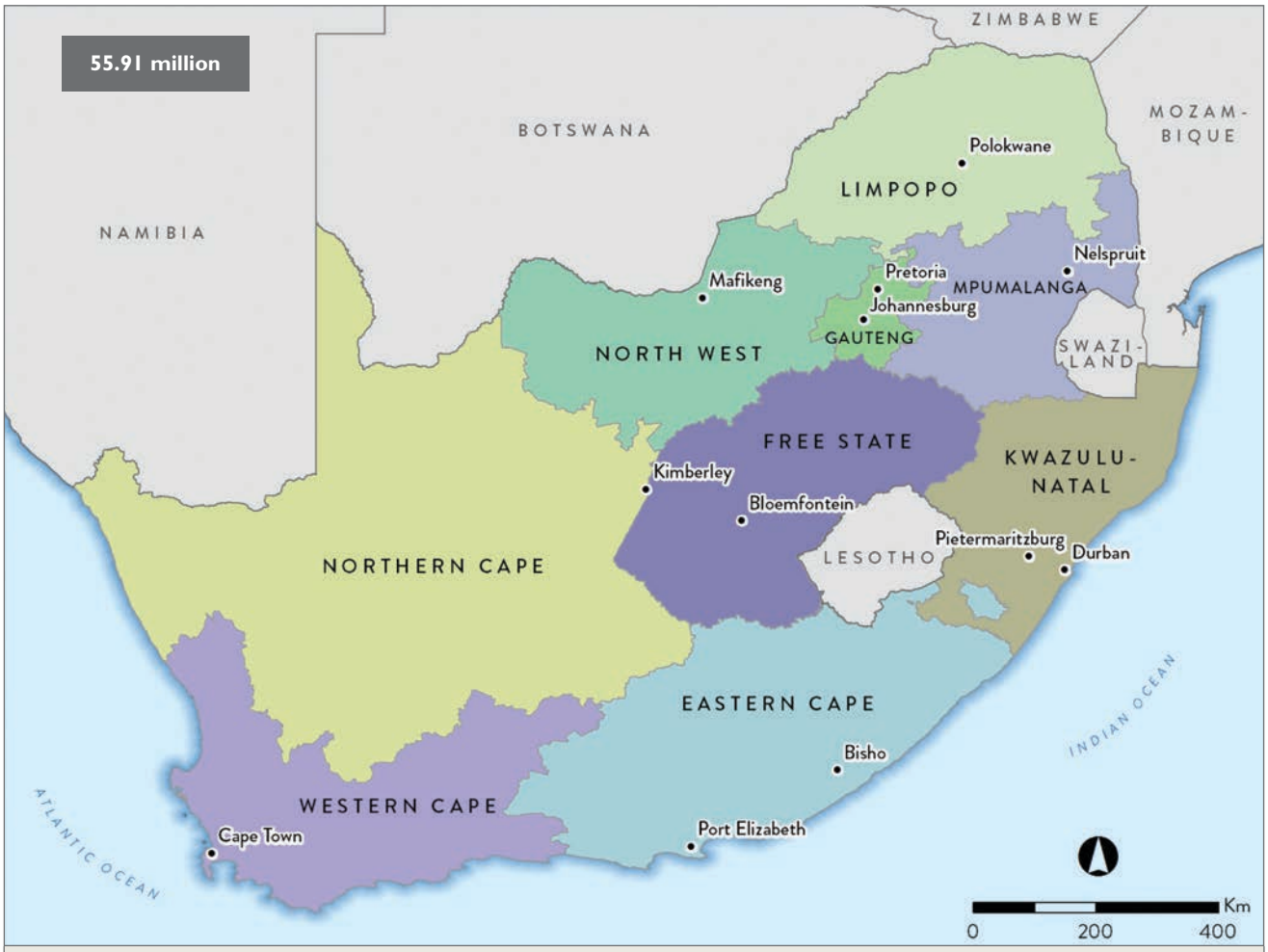


Figure 1. Provinces and major cities of South Africa.

Table 1. Population data by ethnic group.

Population group	Million	%
Black	45.11	80.7
Coloured	4.90	8.8
Indian/Asian	1.37	2.5
White	4.52	8.1
Total	**55.91**	**100**

Table 2. Population data by province.

Province	Million	%
Eastern Cape (EC)	7.06	12.6
Free State (FS)	2.86	5.1
Gauteng (GT)	13.50	24.1
KwaZulu-Natal (KZN)	11.08	19.8
Limpopo (LP)	5.80	10.4
Mpumalanga (MP)	4.33	7.7
North West (NW)	3.80	6.8
Northern Cape (NC)	1.19	2.1
Western Cape (WC)	6.29	11.3
Total	**55.91**	**100**

Treatment centres for dialysis and transplantation

The number of centres contributing data in 2016 was 260; 230 (88.5%) of these are privately owned. One privately owned unit in Limpopo was established as a public–private partnership on the premises of a government hospital to serve public sector patients.

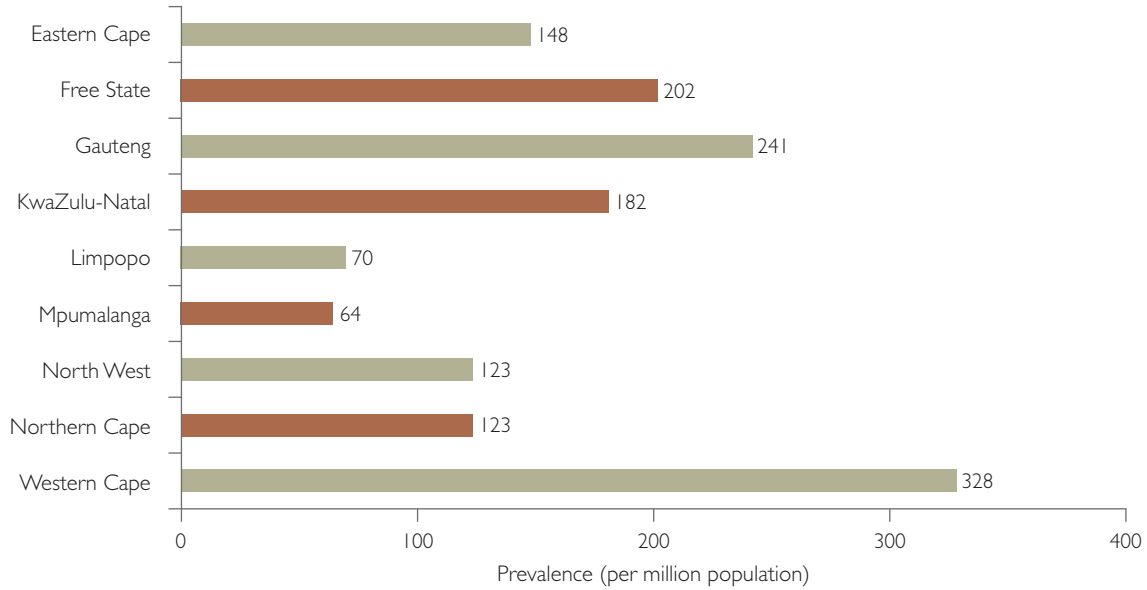
Table 3. Number of centres by province and sector.

Sector	EC	FS	GT	KZN	LP	MP	NW	NC	WC	All
Public	3	6	7	5	0	0	3	1	5	30
Private	18	13	67	61	13	11	11	4	32	230
Total	**21**	**19**	**74**	**66**	**13**	**11**	**14**	**5**	**37**	**260**

Prevalence of renal replacement therapy

The total number of patients on RRT on 31 December 2016 was 10 257. This is a prevalence of 183 per million population (pmp). The slightly lower numbers compared to 2015 can be at least partly ascribed to concerted efforts to improve the reporting of deaths. For example, with the assistance of the South African Medical Research Council, we checked the patients with valid identity document numbers against the deaths database of the Department of Home Affairs. The province with the highest patient numbers remains Gauteng, followed by the Western Cape and KwaZulu-Natal, whereas the province with the highest prevalence is the Western Cape, followed by Gauteng and the Free State.

There were 1 472 patients who started RRT in 2016, an incidence of 26 pmp. Most of these patients (86%) received RRT in private centres.



Province	EC	FS	GT	KZN	LP	MP	NW	NC	WC	All
Patients	1 045	577	3 255	2 022	409	275	465	146	2 063	10 257

Figure 2. Prevalence and numbers of patients on RRT by province.

The number of patients treated in the public sector remains low, with a prevalence of 67.5 pmp. This is lower than the 70 pmp reported for 1994, when most of the chronic dialysis and transplantation was delivered in the public sector. In the private sector, the rate for 2016 is 797.5 pmp. Denominators for prevalence calculations are based on the Stats SA mid-term estimates [6] and the Council for Medical Schemes Annual Report [7]. Medical aid beneficiaries who are unclassified with respect to province were allocated to provinces in proportion to the numbers of beneficiaries in each province.

Table 4. RRT prevalence by healthcare sector.

	Public	Private
Population in millions	47.03	8.88*
ESRD patients on treatment	3 175	7 082
Treatment rate (pmp)	67.5	797.5

*Council for Medical Schemes Annual Report 2016/17

Table 5. Numbers of patients by sector and province.

Sector	EC	FS	GT	KZN	LP	MP	NW	NC	WC	All
Public	299	235	957	431	141	10	162	64	876	3 175
Private	746	342	2 298	1 591	268	265	303	82	1 187	7 082
Total	**1 045**	**577**	**3 255**	**2 022**	**409**	**275**	**465**	**146**	**2 063**	**10 257**

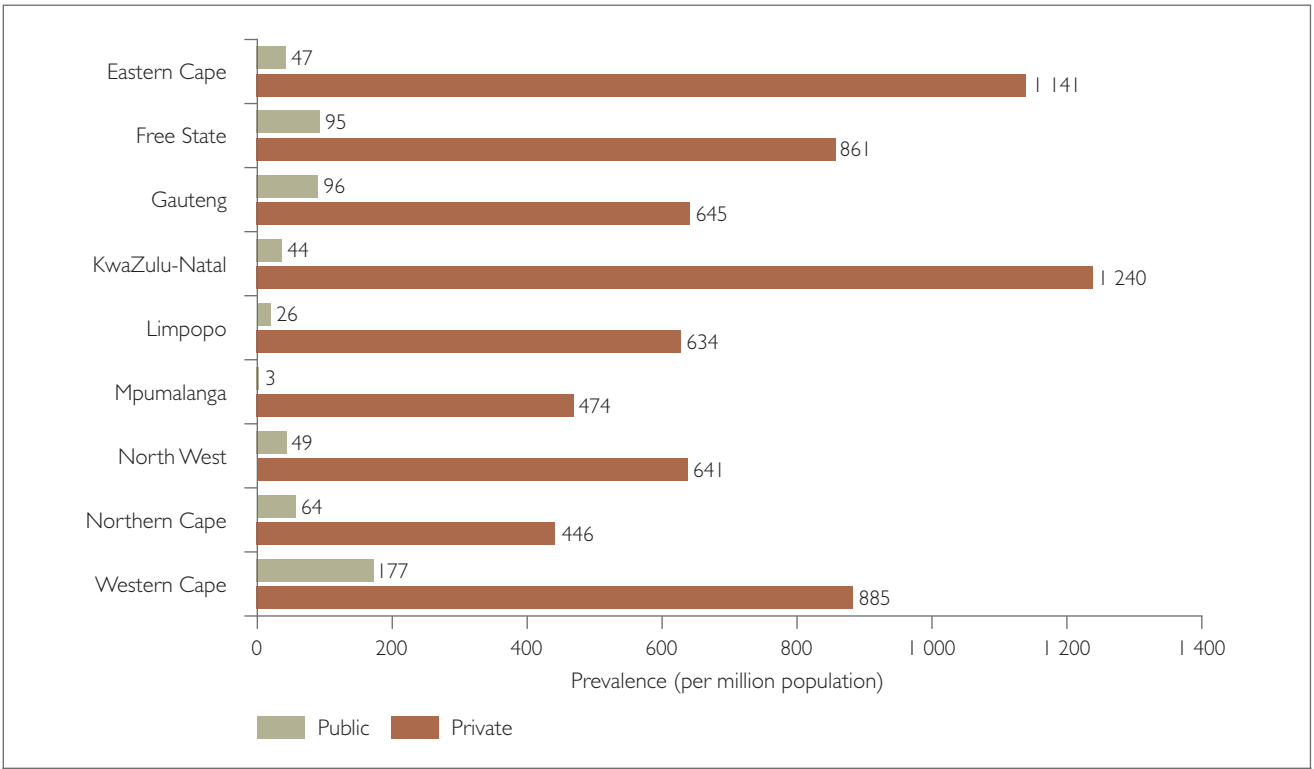
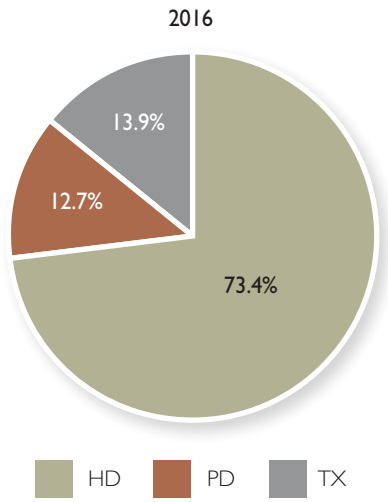


Figure 3. Prevalence of RRT by province and sector.

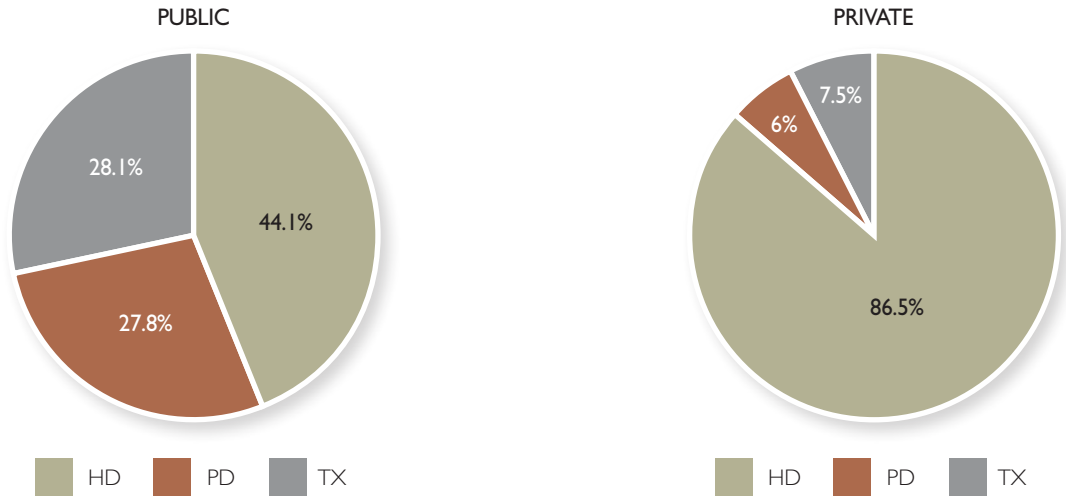
Treatment modality

Of the 10 257 patients on RRT in December 2016, 13.9% had a functioning renal transplant. Of the 8 832 patients on dialysis, 14.8% were on peritoneal dialysis and 85.2% on haemodialysis. Most of the transplant and peritoneal dialysis patients are in the public sector; the private sector has much lower proportions of patients on these RRT modalities.



Modality	Patients	%
Haemodialysis	7 525	73.4
Peritoneal dialysis	1 307	12.7
Transplant	1 425	13.9

Figure 4. Distribution of patients by treatment modality.



Treatment modality	Public sector		Private sector	
	Patients	%	Patients	%
Haemodialysis	1 401	44.1	6 124	86.5
Peritoneal dialysis	881	27.8	426	6.0
Transplant	893	28.1	532	7.5

Figure 5. RRT modality by sector.

Data on new kidney transplants have been supplied by the South African Organ Donor Foundation (http://www.odf.org.za/). The decline in the number of new transplants seen in 2014 (219 transplants) appears to have been reversed, with 261 transplants performed in 2015 and 254 in 2016. The 2016 data include 4 kidney-liver and 1 kidney-pancreas transplants. The kidney transplant rate for 2016 was 4.5 pmp.

Table 6. New kidney transplants in 2016.

	Deceased donor		Living related		Living unrelated		Total
	Child	Adult	Child	Adult	Child	Adult	
Western Cape - Public	3	38	1	16	0	3	61
Western Cape - Private	0	22*	0	25	0	9	56
Gauteng - Public	3	25	0	4	0	0	32
Gauteng - Private	3**	30***	5	20	0	11	69
KwaZulu-Natal - Public	0	0	0	9	0	0	9
KwaZulu-Natal - Private	1	11	0	10	0	3	25
Free State - Public	0	0	0	0	0	0	0
Free State - Private	0	0	0	2	0	0	2
Total	**10**	**126**	**6**	**86**	**0**	**26**	**254**

Child = recipient <18 years; Adult = recipient 18 years and older.
*Includes 1 adult kidney-liver transplant. **Includes 1 child kidney-liver transplant. ***Includes 2 adult kidney-liver transplants and 1 adult kidney-pancreas transplant.
The kidney transplant rate for 2016 was 4.5 pmp. Data supplied by the SA Organ Donor Foundation.

Demographic and clinical data

The mean age of the patients on RRT was 51.5 ± 14.9 years and 59.2% were male. Because of the rationing and selection criteria applied in South African public sector hospitals, patients treated there are much younger than those treated in the private sector (43.4 ± 13.4 versus 55.2 ± 14.2 years). Just more than half of the patients were Black. However, the prevalence was still lowest in Blacks (124 pmp) and highest in Indians/Asians (853 pmp).

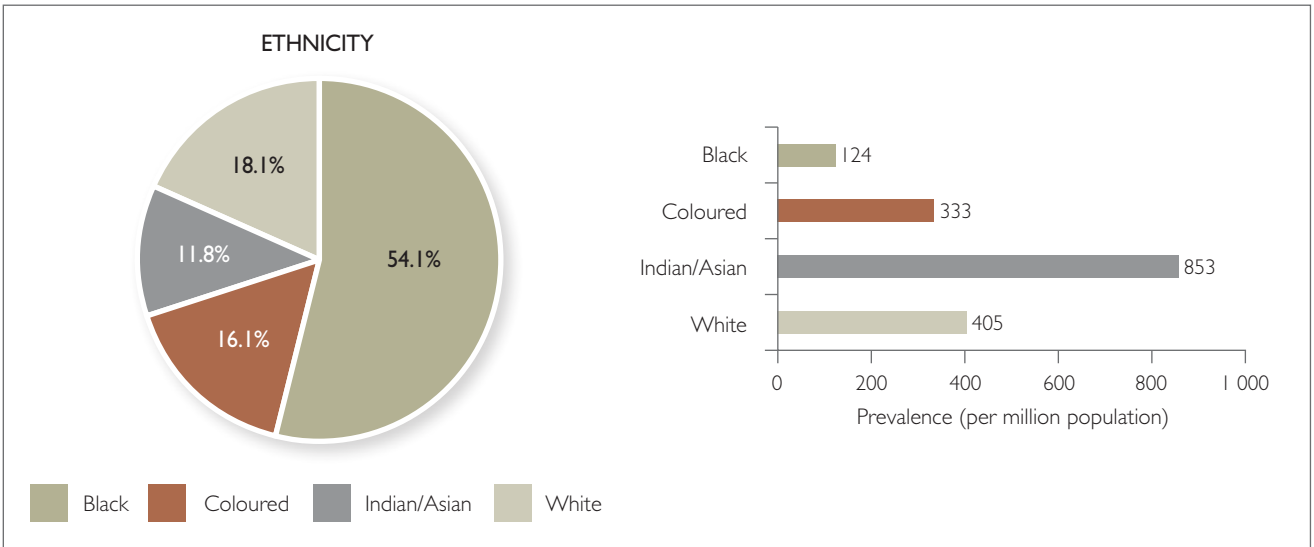


Figure 6. RRT patient numbers and prevalence by ethnicity.

Since 2015, we have been using the new EDTA-ERA coding system for primary renal diagnosis [3]. The most commonly reported diagnosis is hypertensive renal disease, followed by CKD/ESRD of unknown cause and diabetic nephropathy.

Table 7. Most commonly reported causes of ESRD.

	% of total
Hypertensive renal disease	34.7
Cause unknown	32.4
Diabetic nephropathy	15.2
Glomerular disease	9.9
Cystic kidney disease	3.0
Obstruction and reflux	1.7

Of the 9 754 patients with data on diabetes status, 38.7% were diabetic, with a much higher percentage of diabetic patients in the private than in the public sector (49.6% versus 14.9%). The seropositive rate for hepatitis B virus was 1.9% (161 of 8 630 patients), for hepatitis C virus 0.8% (64 of 7 737 patients) and for HIV 10.6% (863 of 8 172 patients).

DISCUSSION

The number of patients on RRT in South Africa stood at 10 257 in 2016, a prevalence of 183 pmp. Most of the patients are being treated with haemodialysis in the private healthcare sector. There is no evidence of any real growth in public sector access to RRT. On the contrary, treatment rates have dropped below those seen in 1994. The RRT prevalence in South Africa is very low when compared with other countries with similar or smaller gross national incomes per capita [8]. The number of new patients starting RRT each year is also very low, and is the lowest of any country included in the International Comparisons chapter of the latest US Renal Data System report [8]. The progressive realisation of access to treatment, which is promised by the South African Constitution, is not happening, and this remains cause for great concern.

Acknowledgements

The SARR is an initiative of the South African Renal Society (http://www.sa-renalsociety.org/) and is chaired by Razeen Davids and Julian Jacobs. The SARR has recently been incorporated as a non-profit company (company registration no. 2018/401217/08, NPO no. 212-901) with Razeen Davids, Julian Jacobs and Sajith Sebastian as directors. The founding document can be accessed via the website of the South African Renal Society.

We thank the doctors, nurses, technologists, support staff and management of participating treatment centres for contributing to the success of our 2016 data collection. These centres are listed in Appendix 1.

We also thank the sponsors listed below, especially the National Department of Health, for their financial and logistical support:

- Actor Pharma
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- Amgen
- Janssen
- National Department of Health
- National Kidney Foundation of South Africa
- Stellenbosch University
- Zydus Healthcare

Our national data manager, Nicola Marais, and data capturer, Suzan Baloyi.

Supplementary materials

The figures in this report are available as PowerPoint slides via the supplementary materials.

Usage of this report

Extracts from this report, and figures from the accompanying PowerPoint slides, may be freely used and reproduced without permission provided the source is acknowledged. Suggested citation: Davids MR, Jardine T, Marais N, Jacobs JC. South African Renal Registry Annual Report 2016. African Journal of Nephrology. 2018; 21(1):61-72. Previous reports are available at http://www.sa-renalsociety.org/registry.asp.

Conflict of interest

None to declare.

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APPENDIX 1: PARTICIPATING TREATMENT CENTRES

EASTERN CAPE		
Public	**Private**	**Private**
Frere Hospital	Jeffreys Bay Kidney and Dialysis Centre (FMC)	NRC Mthatha
Livingstone Hospital	Life Mercantile Hospital	NRC Port Elizabeth HD
Nelson Mandela Academic Hospital	Living Waters Dialysis Aliwal North	NRC Port Elizabeth PD
	NRC Butterworth	NRC Queenstown
	NRC East London HD	NRC Uitenhage
	NRC East London PD	Port Elizabeth Kidney and Dialysis Centre (FMC)
	NRC King Williamstown	Regional Renal Services Lusikisiki
	NRC Kwadwesi	Regional Renal Services Matatiele
	NRC Mdantsane	Regional Renal Services Mthatha

FREE STATE		
Public	**Private**	**Private**
Boitumelo Regional Hospital (Kroonstad)	B. Braun Avitum Bethlehem (Hoogland)	NRC Bloemfontein HD
Bongani Regional Hospital (Welkom)	B. Braun Avitum Bloemfontein	NRC Bloemfontein PD
Dihlabeng Regional Hospital (Bethlehem)	B. Braun Avitum Welkom	NRC Kroonstad
Mofumahadi Manapo Mopeli Hospital (Qua Qua)	Bloemfontein Kidney and Dialysis Centre (FMC)	NRC Pelonomi
Pelonomi Regional Hospital	Graham and Kolff Renal Therapy Thaba Nchu	Sasolburg Kidney and Dialysis Centre (FMC)
Universitas Academic Hospital	Life Rosepark Hospital	Universitas Private Hospital
	Living Waters Dialysis Hoopstad	

GAUTENG		
Public	**Private**	**Private**
Charlotte Maxeke Johannesburg Academic Hospital	Arcadia Kidney and Dialysis Centre (FMC)	LRC Lenasia (Lenmed)
Chris Hani Baragwanath Hospital	Atteridgeville Kidney and Dialysis Centre (FMC)	LRC Lenasia South (Daxina)
Dr George Mukhari Hospital	B. Braun Avitum Lakeview (Benoni)	Mabika Renal Solutions
Helen Joseph Hospital	B. Braun Avitum Pretoria (Kloof)	Midstream Kidney and Dialysis Centre (FMC)
Leratong Hospital	B. Braun Avitum Pretoria (Urology Hospital)	Morningside Children's Kidney Treatment Centre
Sebokeng Hospital	B. Braun Avitum Sandton	Morningside Kidney and Dialysis Centre (FMC)
Steve Biko Academic Hospital	B. Braun Avitum Vanderbijlpark (Emfuleni)	Morula Kidney and Dialysis Centre (FMC)
	B. Braun Avitum Vereeniging (Midvaal)	Naledi Kidney and Dialysis Centre (FMC)
	Carletonville Kidney and Dialysis Centre (FMC)	Netcare Transplant Centre Garden City Hospital
	Edison Hammanskraal Centre	Netcare Transplant Centre Jakaranda Hospital
	Groenkloof Kidney and Dialysis Centre (FMC)	Netcare Transplant Centre Milpark Hospital
	Harmelia Kidney and Dialysis Centre (FMC)	NRC Akasia
	Izinso Dialysis Garankuwa	NRC Alberton
	Izinso Dialysis Soshanguve (Pretoria)	NRC Arcadia
	Izinso Dialysis Soweto	NRC Johannesburg PD
	Kempton Kidney and Dialysis Centre (FMC)	NRC Krugersdorp
	Lanika Nursing Home and Dialysis Centre	NRC Linksfield
	Lenasia Kidney and Dialysis Centre (FMC)	NRC Lyttleton
	Lesedi Kidney and Dialysis Centre (FMC)	NRC Mayfair
	Life Bedford Gardens Hospital	NRC Montana
	Life Carstenhof Hospital	NRC Mulbarton
	Life Fourways Hospital	NRC Olivedale
	Life The Glynnwood Hospital	NRC Parktown West

Abbreviations: FMC = Fresenius Medical Care, LRC = Lenmed Renal Centre, MRC = Melomed Renal Care, NRC = National Renal Care

APPENDIX 1: PARTICIPATING TREATMENT CENTRES continued

GAUTENG cont.		
Public	**Private**	**Private**
	NRC Pretoria East	RCH Zamokuhle (NRC) (Thembisa)
	NRC Pretoria PD	Renalworx Dialysis Centre Wilgers
	NRC Rynfield	Tshepo-Themba Kidney and Dialysis Centre (FMC)
	NRC Sebokeng	Tshwane Kidney and Dialysis Centre (FMC)
	NRC Sedibeng	Vaal Kidney and Dialysis Centre (FMC)
	NRC Sunninghill	Vosloorus Kidney and Dialysis Centre (Clinix)
	NRC Sunward Park	Waverley Kidney and Dialysis Centre (FMC)
	NRC Waterfall	Westrand Kidney and Dialysis Centre (FMC)
	Pretoria Kidney and Dialysis Centre (FMC)	Wits Donald Gordon Kidney and Dialysis Centre (FMC)
	Randfontein Kidney and Dialysis Centre (FMC)	Wits Donald Gordon Medical Centre Transplant Division
	Randfontein Private Hospital Dialysis Unit	

KWAZULU-NATAL		
Public	**Private**	**Private**
Addington Hospital	B. Braun Avitum Dundee	Newcastle Kidney and Dialysis Centre (FMC)
Greys Hospital	B. Braun Avitum Durdoc	NRC Athlone
Inkosi Albert Luthuli Hospital	B. Braun Avitum Ethekwini	NRC Ballito
King Edward VIII Hospital	B. Braun Avitum Howick	NRC Berea
Ngwelezana Hospital	B. Braun Avitum Newcastle	NRC Chatsworth
	B. Braun Avitum Pietermaritzburg	NRC Durban PD
	B. Braun Avitum Scottburgh	NRC Gateway
	B. Braun Avitum Vryheid	NRC Greyville
	Chatsworth Kidney and Dialysis Centre (FMC)	NRC Hillcrest
	Coastal Nephrology Centre Greytown	NRC Ladysmith
	Coastal Nephrology Centre Nongoma	NRC Margate
	Coastal Neprology Centre Ulundi	NRC Pietermaritzburg CBD
	Durban Kidney and Dialysis Centre (FMC)	NRC Pietermaritzburg PD
	Ekuphileni Renal Centre Manguzi	NRC Pinetown
	Empangeni Kidney and Dialysis Centre (FMC)	NRC Richards Bay
	Ethekwini Kidney and Dialysis Centre (FMC)	NRC Umhlanga
	Hibiscus Kidney and Dialysis Centre (FMC)	Pinetown Kidney and Dialysis Centre (FMC)
	Kokstad Kidney and Dialysis Centre (FMC)	Regional Renal Services Harding
	Kwazulu Dialysis Shifa Renal Unit	Regional Renal Services Ixopo
	Kwazulu Dialysis Umlazi Megacity R enal Unit	Renal Care Team Durdoc
	Kwazulu Dialysis Westville Renal Unit	Renal Care Team Kwamashu
	Life Chatsmed Hospital	Renal Care Team Pinetown
	Life Empangeni Hospital	Richards Bay Kidney and Dialysis Centre (FMC)
	Life Entabeni Hospital	Sparks Renal Unit
	Life Hilton Hospital	Stanger Kidney and Dialysis Centre (FMC)
	Life Mount Edgecombe Hospital	Ultra Kidney Care Isipingo
	Merediac Durban	Umhlanga Kidney and Dialysis Centre (FMC)
	Merediac Pinetown	Verulam Dialysis Centre
	Mount Edgecombe DCG	Victoria Kidney and Dialysis Centre (FMC)
	Mount Edgecombe Kidney and Dialysis Centre (FMC)	Vryheid Kidney and Dialysis Centre (FMC)
	Netcare Transplant Centre St Augustine's Hospital	

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APPENDIX 1: PARTICIPATING TREATMENT CENTRES continued

LIMPOPO		
Public	**Private**	**Private**
	B. Braun Avitum Louis Trichardt	Hope Renal Care and Dialysis
	B. Braun Avitum Mokopane	NRC Polokwane
	B. Braun Avitum Polokwane	NRC Venda
	B. Braun Avitum Tzaneen	Phalaborwa Kidney and Dialysis Centre (FMC)
	Chantel van Rooyen Bela-Bela	Polokwane Kidney and Dialysis Centre (FMC)
	Edison Giyani Centre	Thohoyandou Kidney and Dialysis Centre (FMC)
	Edison Thohoyandou Centre	

MPUMALANGA		
Public	**Private**	**Private**
	B. Braun Avitum Ermelo	Highveld Nephrology Center
	B. Braun Avitum Nelspruit	Life Midmed Hospital
	B. Braun Avitum Trichardt	Middelburg Kidney and Dialysis Centre (FMC)
	B. Braun Avitum Witbank	Mpumalanga Kidney and Dialysis Centre (FMC)
	Emalahleni Kidney and Dialysis Centre (FMC)	NRC Nelspruit
	Hazyview Dialysis Centre	

NORTH WEST		
Public	**Private**	**Private**
Job Shimankana Tabane Hospital	B. Braun Avitum Vryburg	North West Dialysis Viljoenskroon
Klerksdorp Hospital	Brits Kidney and Dialysis Centre (FMC)	NRC Rustenberg
Mafikeng Hospital	Izinso Dialysis Mafikeng	Potchefstroom Kidney and Dialysis Centre (FMC)
	Mafikeng Kidney and Dialysis Centre (FMC)	Rustenburg Kidney and Dialysis Centre (FMC)
	North West Dialysis Klerksdorp	Zeerust Renal Unit
	North West Dialysis Lichtenburg	

NORTHERN CAPE		
Public	**Private**	**Private**
Kimberley Hospital	B. Braun Avitum Kimberley	North West Dialysis Hartswater
	B. Braun Avitum Upington	RCH Kimberley (NRC)

WESTERN CAPE		
Public	**Private**	**Private**
George Hospital	Athlone Kidney and Dialysis Centre (FMC)	NRC Cape Town CBD
Groote Schuur Hospital	B. Braun Avitum Cape Gate	NRC Cape Town PD
Red Cross War Memorial Children's Hospital	B. Braun Avitum Mossel Bay	NRC George
Tygerberg Hospital	B. Braun Avitum Oudtshoorn	NRC Goodwood
Worcester Hospital	B. Braun Avitum Worcester	NRC Kuilsriver
	Cape Town Kidney and Dialysis Centre (FMC)	NRC Paarl
	George Kidney and Dialysis Centre (FMC)	NRC Plumstead
	Hermanus Kidney and Dialysis Centre (FMC)	NRC Vredenburg
	Khayelitsha Kidney and Dialysis Centre (FMC)	Paardevlei Kidney and Dialysis Centre (FMC)
	Life Vincent Pallotti Hospital	Panorama Kidney and Dialysis Centre (FMC)
	Life Vincent Pallotti Hospital Paediatrics	Rondebosch Dialysis Centre
	MRC Gatesville HD	Stellenbosch Kidney and Dialysis Centre (FMC)
	MRC Gatesville PD	UCT Kidney and Dialysis Centre (FMC)
	MRC Mitchells Plain	UCT Private Academic Hospital
	MRC Tokai	Winelands Kidney and Dialysis Centre (FMC)
	NRC Blaauwberg	Worcester Kidney and Dialysis Centre (FMC)

Abbreviations: FMC = Fresenius Medical Care, LRC = Lenmed Renal Centre, MRC = Melomed Renal Care, NRC = National Renal Care

APPENDIX 1: PARTICIPATING TRANSPLANT CENTRES

FREE STATE	
Public	**Private**
	Universitas Private Hospital

GAUTENG	
Public	**Private**
Charlotte Maxeke Johannesburg Academic Hospital	Netcare Garden City Hospital
Steve Biko Academic Hospital	Netcare Jakaranda Hospital
	Netcare Milpark Hospital
	Wits Donald Gordon Medical Centre

KWAZULU-NATAL	
Public	**Private**
Inkosi Albert Luthuli Hospital	Life Entabeni Hospital
	Netcare St Augustine's Hospital

WESTERN CAPE	
Public	**Private**
Groote Schuur Hospital	Netcare Christiaan Barnard Memorial Hospital
Red Cross War Memorial Children's Hospital	UCT Private Academic Hospital
Tygerberg Hospital	

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[17] https://www.export.gov/About-Us
[18] https://www.export.gov/article?id=South-Africa-medical-devices

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South Africa - Medical Devices

This is a best prospect industry sector for this country. Includes a market overview and trade data.

Last Published: 10/25/2018

Overview
Unit: $ millions

	2016	2017 (estimated)	2018 (estimated)	2019 (estimated)
Total Market Size	1102.3	1371.5	1560.8	1684.8
Total Local Production	177.1	193.39	210.95	227.8
Total Imports	1038.2	983.18	933	1007.6
Imports from the U.S.	294.34	309	324.4	350.3
Exchange Rate: 1 USD	14.71			12

South Africa is considered one of the largest markets in the MEA region and by some estimates is the largest economy in Africa. Spending on medical devices as a proportion of wealth is lower than average for this region, at around 0.3% of GDP and 4.0% of health expenditure (2015).

It is projected that 2018 will be a more positive year for the healthcare sector in terms of growth, but challenges remain due to the sluggish economic growth and currency fluctuations. Most of the major product categories will be affected, which include consumables, diagnostics, dental, and orthopedics. Medical device imports will grow modestly, and South African exports will remain muted.

The medical device market in South Africa continues to be dominated by the United States in all categories, but particularly in orthopedics, prosthetics, patient aids, other devices and consumables. However, buyers are increasingly looking towards sourcing from Asian markets in an effort to save on costs. Germany is second to the United States, followed by China, Switzerland, the United Kingdom, and Japan. China is making significant inroads, increasing by around 10% in terms of market share.

Market growth will likely be influenced by national legislation related to the government's NHI program, as well as the Competition Commission's investigation into private healthcare costs.Competition from local production will be muted and mostly limited to consumables (bandages, dressings, etc.) and furniture. However, the local development of Lodox Systems, a full-body X-ray machine, as well as the Aceso system by CapeRay, a screening device integrating two modalities -– full field mammography and automated breast ultrasound, indicates that local producers can successfully compete with international suppliers of sophisticated equipment if they have access to the appropriate funding channels.

The Department of Health has issued new regulatory requirements for medical devices and in vitro diagnostic (IVD) devices. These regulations, which lay out the procedures for registration, were published in the Government Gazette in December 2016 appear to have taken immediate effect. Registration with the Medicines Control Council (MCC) is mandatory for devices procured under international tendering. For other

transactions, there will be a transitional arrangement of as yet unregistered devices and IVDs. However, the MCC can impose requirements at its discretion for devices not participating in public tenders in order to ensure that the medical device or IVD meets the essential principles of safety and performance, as determined by the Council.

Sub-Sector Best Prospects

According to analysis by BMI, diagnostic imaging facilities are underdeveloped with a low provision of advanced equipment. According to the World Health Organization, South Africa has 12 MRI scanners and 51 CT scanners in the public sector, equal to 0.2 and 1.0 units per mn population. There were also 32 mammography units, 21 linear accelerators, nine telecobalt units and three PET scanners. The overall provision of equipment would be higher if units in the private sector were included. According to Elekta, there are a total of 71 linear accelerators in operation in public and private centers, but even this figure is said to be less than half the total number actually needed.

Diagnostic Imaging Equipment:

Consistent with healthcare infrastructure upgrades, the demand for diagnostic imaging equipment is forecast to grow approximately 12% between 2016 and 2021.

Dental Equipment:

Although the smallest product area (3.6% of all medical imports), it grew at a CAGR of 10.2% in the last year. Access to good dental health remains a problem for the majority of the population.

Patient Aids:

Patient monitoring devices, powered mobility aids and other patient aids have experienced higher growth. This is a market that is dominated by India and China. This market sector is forecast to grow at 15.7% from 2016–2021.
The sophisticated South African medical community is generally interested in new technology developments and innovative products; hence all product categories will be considered.

Opportunities

The underdeveloped market offers potential for growth, but is considerably restrained by funding issues, poor infrastructure, and staff shortages (particularly in the public sector. Opportunities will exist for exporters of medical equipment (particularly new and innovative equipment), as extensive upgrades and development of hospital infrastructure is being considered. The private healthcare sector is very sophisticated and boasts world class facilities with several centers of excellence. However, approximately 93% of equipment is imported. Refurbished equipment is not favored by the medical community, particularly in the private sector, and that market opportunities here will be very limited.

Web Resources

South African Medical Devices Industry Association (SAMED)
http://www.samed.org.za

Radiological Society of South Africa
http://www.rssa.co.za

South African Orthopedic Association

http://www.saoa.org.za

South African Spine Society
http://www.saspine.org

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Felicity.Nagel@trade.gov
Phone: +27 11 290 3332; Fax: +27 11 884 0253, or visit our Website:
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