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## KEY FINDINGS

### **HUMAN DEVELOPMENT INDEX, 1996**

In general, the rate of development in South Africa has shown an increase over time.

The Human Development Index (HDI) of the United Nations Development Programme (UNDP) is used for obtaining internationally comparable indications of the ability of individuals within a country or across various countries to live long, informed and comfortable lives. The scale of the HDI ranges from zero (indicative of a very low development level) to 1 (indicative of very high level).

The HDI for South Africa in 1996, as calculated by Statistics South Africa, and based on figures obtained from Census '96, was 0,69. This is a slight increase compared to the index of 0,68, as calculated for 1991, but is a significant increase, compared with the index of 0,557, as calculated for 1980.

The South African HDI falls within the range of countries with medium human development indices such as China (0,71 for 1998), Indonesia (0,67), Algeria (0,68), and Swaziland (0,66). It is considerably higher than those countries with a low index such as Niger (0,29) and Mozambique (0,34), but considerably lower than the index for highly industrialised countries such as Canada (0,94).

### **CALCULATING THE HDI**

The HDI consists of three components:

- Longevity, which is measured by life expectancy at birth.
- Educational attainment is measured by two educational variables, namely adult literacy and combined gross primary, secondary and tertiary enrolment ratio. The educational attainment index is then obtained by assigning a weight of two thirds to adult literacy and one third to the combined gross primary, secondary and tertiary enrolment ratio.
- Income, which is measured by gross domestic product (GDP) per capita, converted to purchasing power parity in dollars (PPP\$), for international comparability.

Equal weights are given to each of the three indicators constituting the HDI. For more detailed explanations, the reader is referred to the explanatory notes and glossary sections of this document.

### **COMPARISONS OF THE SOUTH AFRICAN HDI OVER TIME**

The way in which to calculate the index has been modified over time, as described in the **explanatory notes** and **glossary**. Therefore such comparisons should be treated with caution. Nevertheless, certain trends in development over time should be noted.

In South Africa, as we have noted, the overall increase in the HDI was relatively large between 1980 and 1991, but only slight between 1991 and 1996. The change over time varied not only by province and population group, but also by the index's components (longevity, educational attainment and income).

*The HDI in 1980, 1991 and 1996 by province*

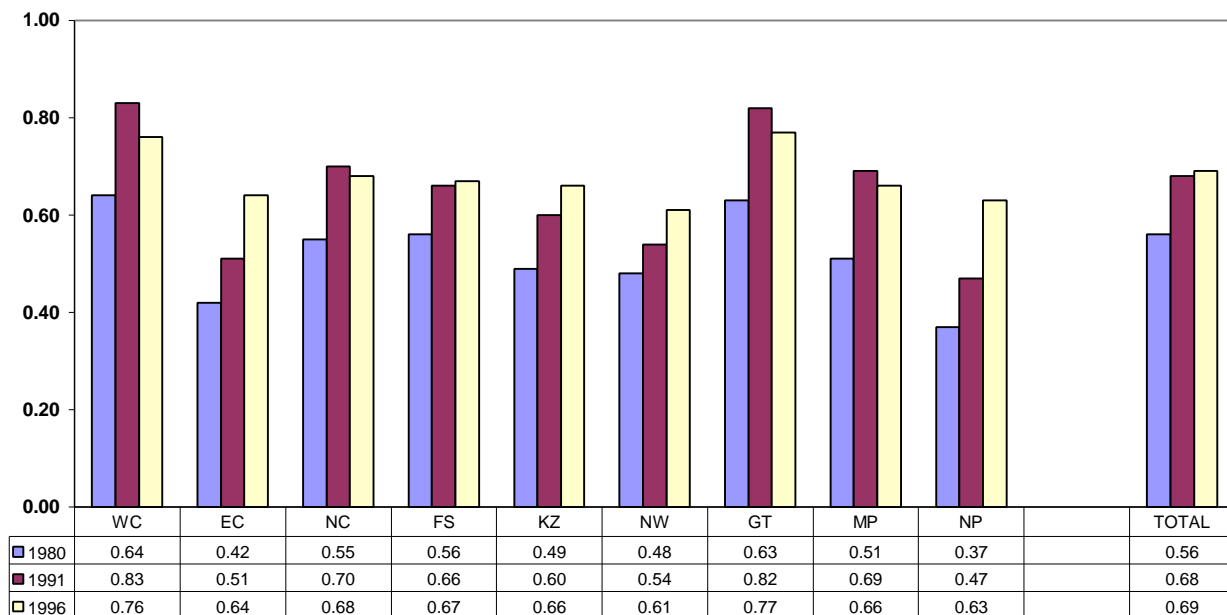
Figure 1 below indicates that changes in overall development, as measured by the HDI, have generally been positive. But such change has varied by province. All provinces show an increase between 1980 and 1991, but on the other hand, some provinces show an increase between 1991 and 1996, while others show a decrease.

An example of an overall increase in development over time is Northern Province. Its HDI increased from 0,37 to 0,47 between 1980 and 1991, and then to 0,63 in 1996. The index of North West Province increased less steeply over this time period, from 0,48 through 0,54 to 0,61, while Mpumalanga initially increased from 0,51 to 0,69 and then decreased to 0,66. Gauteng, Western Cape and Northern Cape also showed a decrease in the HDI between 1991 and 1996, while Free State, KwaZulu-Natal and Eastern Cape showed an increase.

The HDI across provinces ranged from 0,61 to 0,77 in 1996, as against 0,37 to 0,64 in 1980 and 0,47 to 0,83 in 1991. The differences in development have thus become less steep in 1996, compared with what they were in the earlier years.

Figure 1

## Human development index by province for 1980,1991 and 1996



Source Stats SA data sets

### DIFFERENCES IN THE COMPONENTS OF THE INDEX BY PROVINCE

Not only the overall HDI, but also each component, has changed differently over time. This applies for the country as a whole, and for each province.

Life expectancy at birth

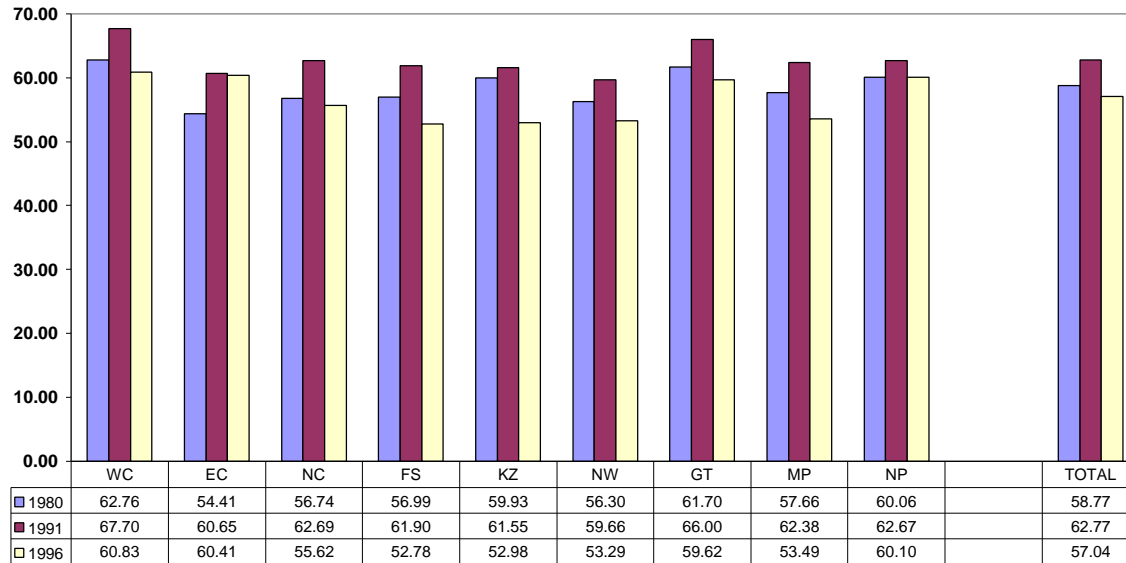
Figure 2 indicates that for the country as a whole, life expectancy at birth showed an increase from 58,77 years in 1980 to 62,77 years in 1991. But it showed a decrease to 57,04 years in 1996, which is even lower than the life expectancy at birth in 1980.

The figure also shows that changes in this indicator varied over time by province. For example, in KwaZulu-Natal, it rose from 59,93 years in 1980 to 61,55 years in 1991, but then it decreased steeply to 52,98 years in 1996. In Eastern Cape, on the other hand, it rose from 54,41 years in 1980 to 60,65 years in 1991, and then remained approximately the same, at 60,41 years, in 1996.

Figure 2

**Life expectancy at birth (years) by province  
for 1980,1991 and 1996**

Life expectancy at birth in years



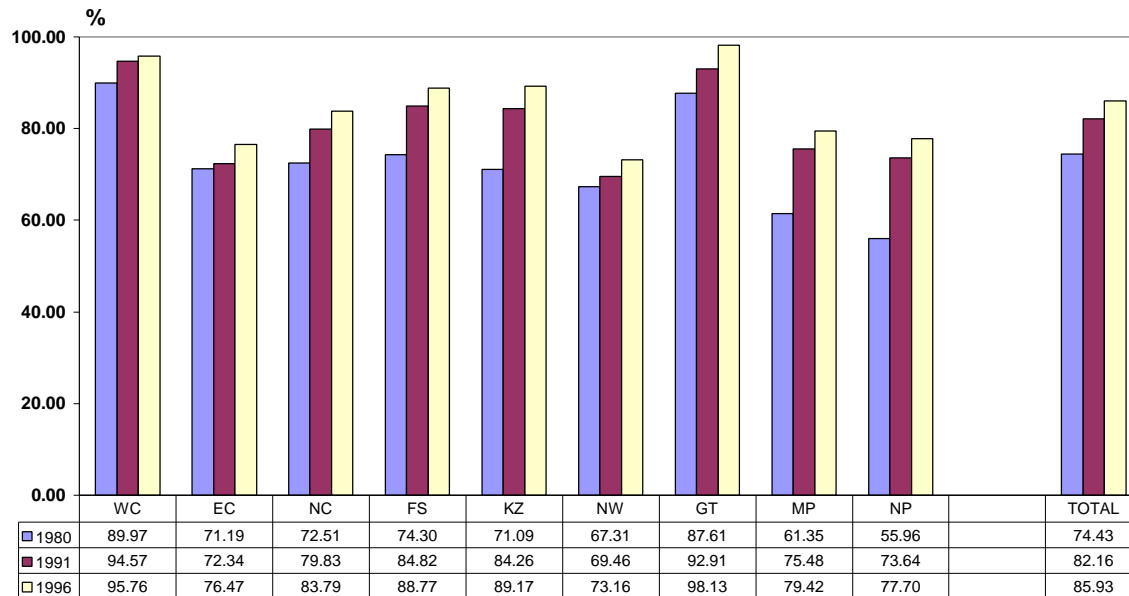
Source Stats SA data sets

**Adult literacy rate**

Literacy among those aged 15 years or more contributes two thirds to the indicator of educational attainment. Figure 3 shows that there has been an overall increase in the percentage of literate adults between 1980 and 1996. The increase is particularly noticeable in certain provinces, for example Northern Province (from 55,96% to 77,70%), Mpumalanga (from 61,35% to 79,42%) and KwaZulu-Natal (from 71,09% to 89,17%).

Figure 3

Adult literacy rate (%) by province  
for 1980,1991 and 1996



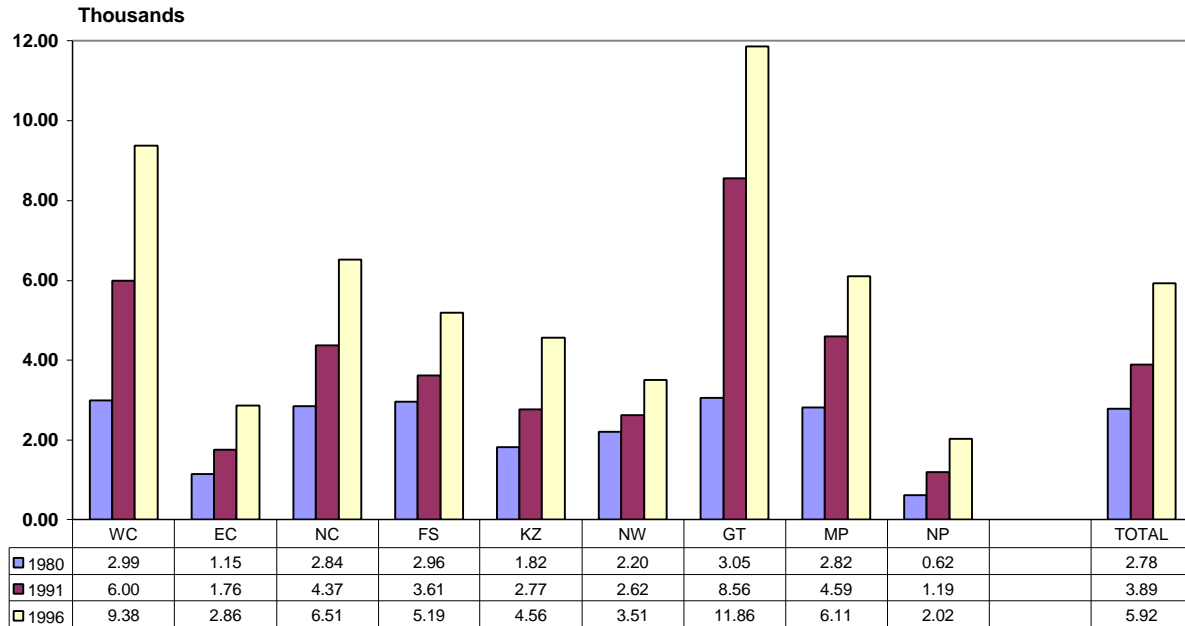
Source Stats SA data sets

### Real GDP per capita, converted to PPP\$

Figure 4 indicates that the third indicator - gross domestic product (GDP) per capita, converted to purchasing power parity in dollars (PPP\$) - has increased steadily over time, both for the country as a whole and in all provinces. According to this indicator, some provinces have risen more rapidly than others. For example, in Gauteng, the real GDP per capita rose from PPP\$ 3,05 thousand in 1980 to PPP\$8,56 thousand in 1991 and then to PPP\$ 11,86 thousand in 1996. In North West Province, however, it rose less steeply from PPP\$ 2,20 thousand in 1980 to PPS\$ 2,62 in 1991 and to PPP\$ 3,51 thousand in 1996.

Figure 4

Real GDP per capita (PPP\$) by province  
for 1980,1991 and 1996



Source Stats SA data sets

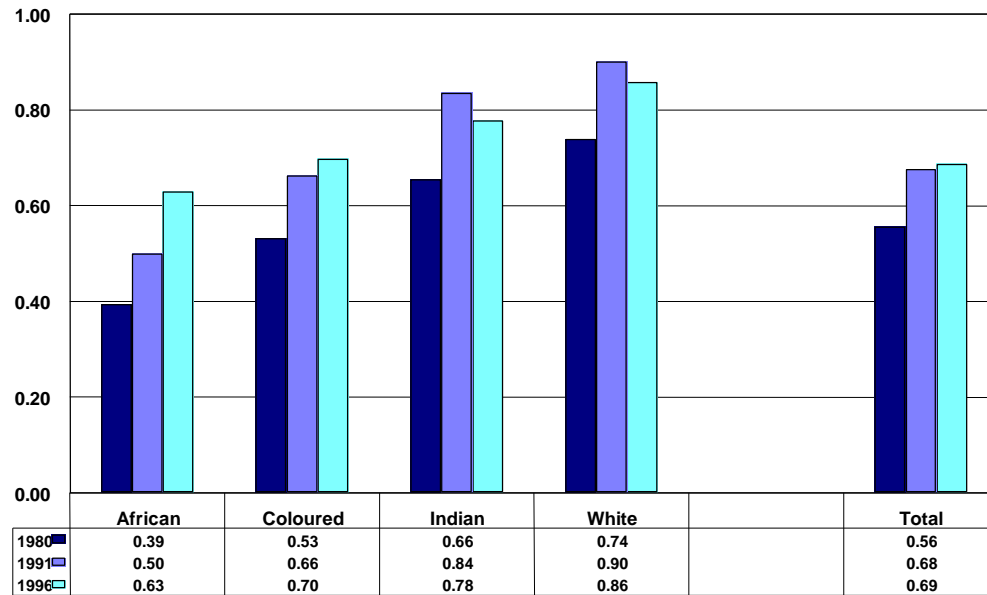
### THE HDI BY POPULATION GROUP

Figure 5 indicates that changes in overall development, as measured by the HDI, have varied by population group over time. All groups show an increase in the HDI between 1980 and 1991, but the African and coloured groups show an increase between 1991 and 1996, while the Indian and white groups show a decrease.



Figure 5

**Human development index by population group  
1980, 1991 and 1996**



Source Stats SA data sets

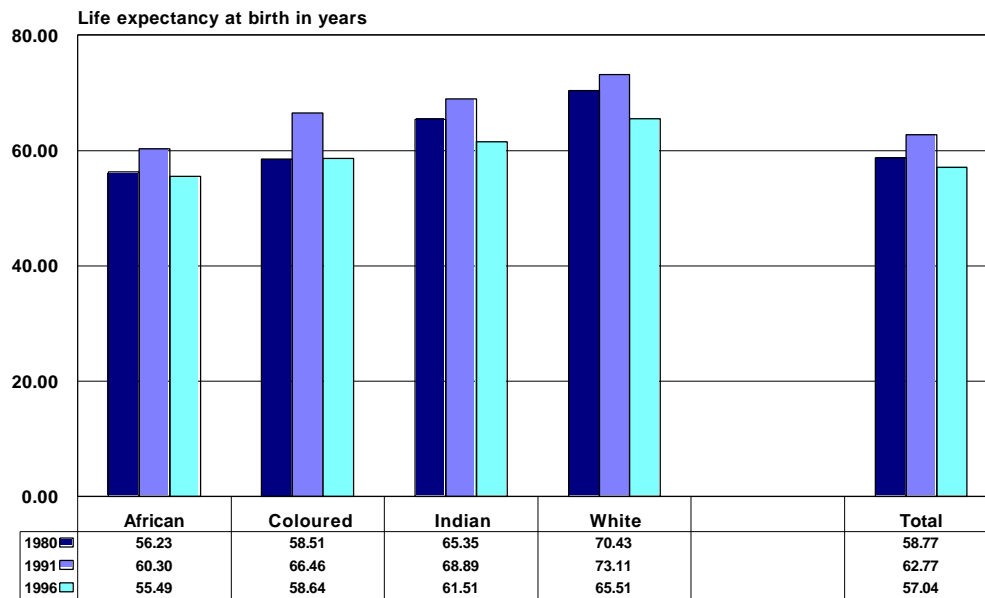
**DIFFERENCES IN THE COMPONENTS OF THE INDEX BY POPULATION GROUP**

**Life expectancy at birth**

Figure 6 shows that life expectancy at birth has decreased between 1991 and 1996 for all population groups after an initial increase between 1980 and 1991.

Figure 6

**Life expectancy (in years) at birth  
by population group  
1980, 1991 and 1996**



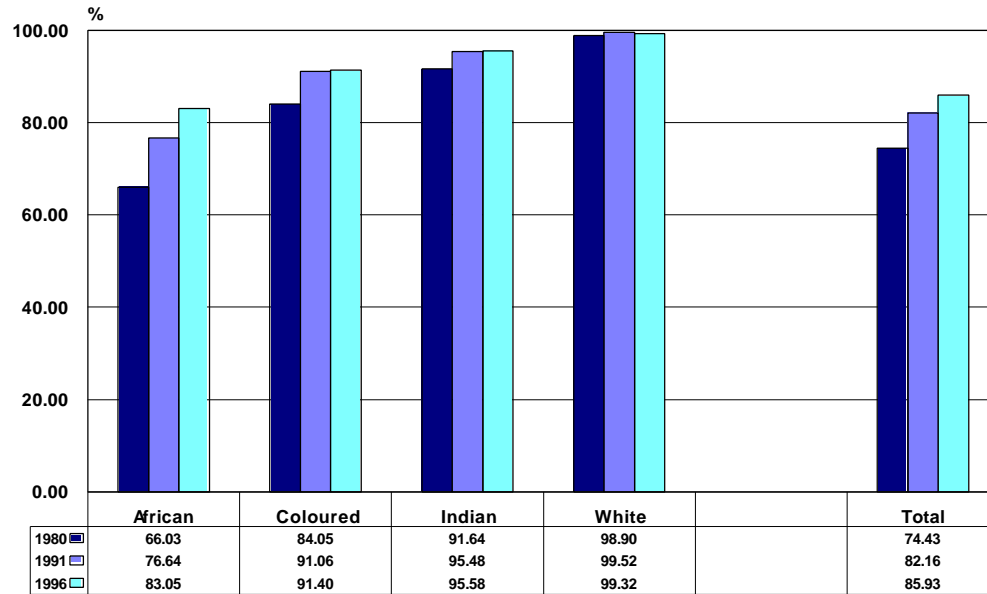
Source Stats SA data sets

### Adult literacy rate

Figure 7 shows a steady increase in the literacy rate among Africans aged 15 years or more.

Figure 7

### Adult literacy rate (%) by population group 1980, 1991 and 1996



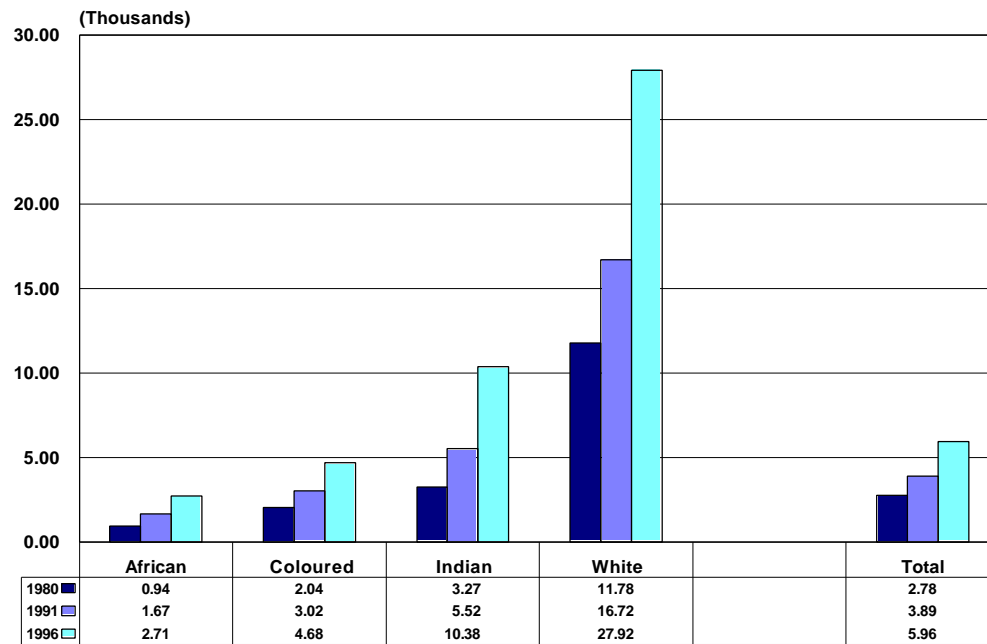
Source Stats SA data sets

### Real GDP per capita, converted to PPP\$

Figure 8 shows an increase in PPP\$ over time for all population groups, but particularly for whites.

Figure 8

**Real GDP per capita (PPP\$),  
1980, 1991 and 1996**



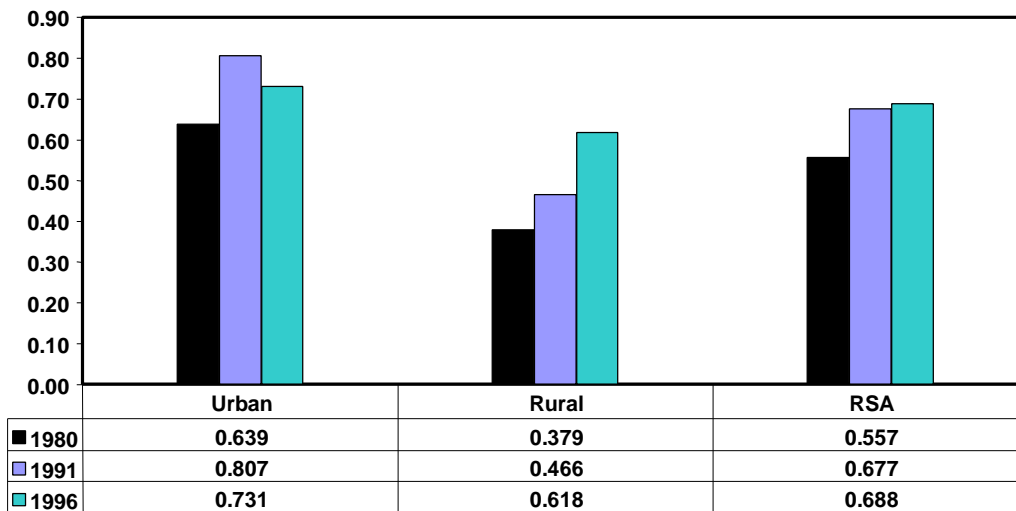
Source Stats SA data sets

## THE HDI BY TYPE OF REGION

Figure 9 shows that the increase in HDI for RSA between 1980 and 1996, was largely due to an increase in the HDI in the rural areas, whereas the urban areas had a lower HDI in 1996 compared with 1991.

Figure 9

Human development index in rural and urban areas:  
1980, 1991 and 1996



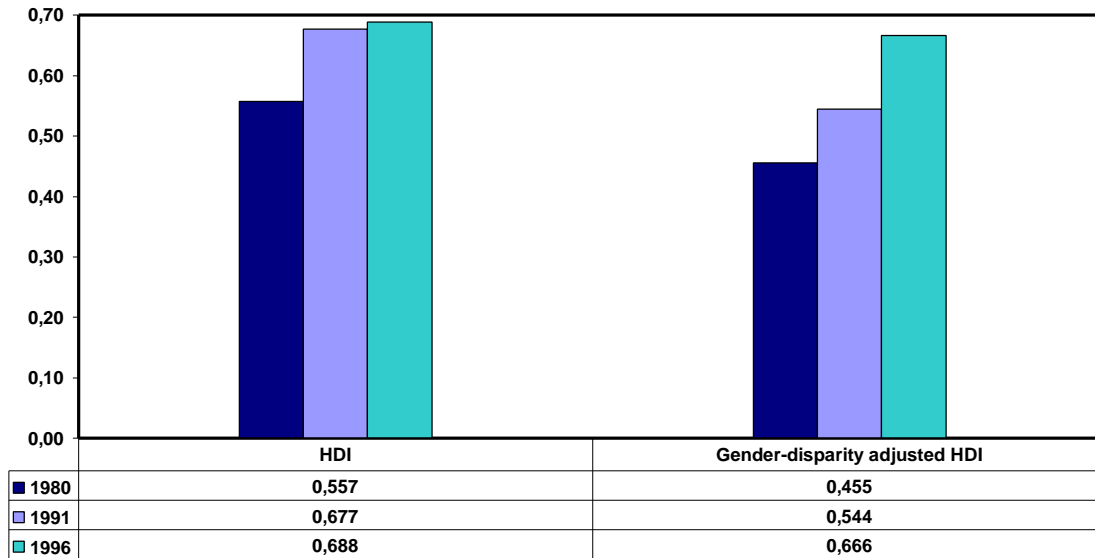
Source Stats SA data sets

## THE GENDER-DISPARITY ADJUSTED HDI

The gender-disparity adjusted HDI (the HDI for RSA adjusted to make provision for inequality between gender), followed the trend and increased in the period under review.

Figure 10

**Gender-disparity adjusted HDI for the RSA:  
1980, 1991 and 1996**



Source Stats SA data sets

The difference in the HDI and the gender disparity adjusted HDI for 1996 is much lower than in the preceding two periods. One should however be careful when analysing this as a changed methodology in the calculation of the gender disparity adjusted HDI makes comparisons over time extremely difficult.

## **CONCLUSION**

In general, the indicators measuring educational attainment and income have steadily increased between 1980 and 1996. But the indicator measuring life expectancy has decreased between 1991 and 1996, after an initial increase between 1980 and 1991, at least in part due to the HIV/AIDS epidemic that is sweeping the country.

The HDI is suited to identify social groups and regions requiring investment in human development. However, several reservations should be borne in mind:

- The HDI and its components are not sensitive to rapid change.
- The conditions for an “average” person are reflected. The extent to which individuals deviate from this norm is not reflected.
- Only a small number of factors indicative of human development are taken into consideration when doing these calculations. Subjective considerations (political, religious or economic freedom, happiness, etc.) are not considered. Neither are factors such as quality of training etc. taken into consideration.

As long as the limitations of the HDI are acknowledged, the HDI might prove a useful tool in identifying development priorities. Despite its advantages over indicators such as GDP per capita, it remains an attempt to summarise complex social dynamics processes by means of a single number.

**Table 1 - Human Development Index by population group: 1996**

Population group	HDI rank	Life expectancy at birth (years)	Life expectancy at birth (years) Index	Adult literacy rate (%)	Adult literacy index	Combined gross primary, secondary & tertiary enrolment (%)	Combined gross enrolment index	Educational attainment index	Real GDP per capita (PPP\$)	Income Index	HDI
RSA		57,04	0,53	85,93	0,86	83,88	0,84	0,85	5 916	0,68	0,688
Africans	4	55,49	0,51	83,05	0,83	82,97	0,83	0,83	2 713	0,55	0,630
Coloureds	3	58,64	0,56	91,40	0,91	86,07	0,86	0,89	4 680	0,64	0,698
Indians	2	61,51	0,61	95,58	0,96	91,95	0,92	0,95	10 382	0,77	0,778
Whites	1	65,51	0,68	99,32	0,99	89,69	0,90	0,96	27 942	0,94	0,858



**Table 2 - Human Development Index by province: 1996**

Provinces	HDI rank	Life expectancy at birth (years)	Life expectancy at birth (years) Index	Adult literacy rate (%)	Adult literacy index	Combined gross primary, secondary & tertiary enrolment (%)	Combined gross enrolment index	Educational attainment index	Real GDP per capita (PPP\$)	Income Index	HDI
RSA		57,04	0,53	85,93	0,86	83,88	0,84	0,85	5 916	0,68	0,688
Eastern Cape	7	60,41	0,59	76,47	0,76	81,87	0,82	0,78	2 856	0,56	0,643
Free State	4	52,78	0,46	88,77	0,89	88,37	0,88	0,89	5 185	0,66	0,671
Gauteng	1	59,62	0,58	98,13	0,98	86,88	0,87	0,94	11 862	0,80	0,771
Kwazulu Natal	5	52,98	0,47	89,17	0,89	82,79	0,83	0,87	4 563	0,64	0,658
Mpumalanga	6	53,49	0,47	79,42	0,79	84,44	0,84	0,81	6 105	0,69	0,657
Northern Cape	3	55,62	0,51	83,79	0,84	82,10	0,82	0,83	6 513	0,70	0,679
Northern Province	8	60,10	0,59	77,70	0,78	82,97	0,83	0,80	2 019	0,50	0,629
North West	9	53,29	0,47	73,16	0,73	82,37	0,82	0,76	3 509	0,59	0,608
Western Cape	2	60,83	0,60	95,76	0,96	86,39	0,86	0,93	9 381	0,76	0,762

**Table 3 - Human Development Index by type of region: 1996**

Population group	HDI rank	Life expectancy at birth (years)	Life expectancy at birth (years) Index	Adult literacy rate (%)	Adult literacy index	Combined gross primary, secondary & tertiary enrolment (%)	Combined gross enrolment index	Educational attainment index	Real GDP per capita (PPP\$)	Income Index	HDI
RSA		57,04	0,53	85,93	0,86	83,88	0,84	0,85	5 916	0,68	0,688
Urban		56,22	0,52	94,51	0,95	87,27	0,87	0,92	9 023	0,75	0,731
Rural		57,98	0,55	76,36	0,76	81,18	0,81	0,78	2 314	0,52	0,618

**Table 4 -Human Development Index by population group: 1991**

<b>Population group</b>	<b>HDI rank</b>	<b>Life expectancy at birth (years)</b>	<b>Adult literacy rate (%)</b>	<b>Mean years of schooling</b>	<b>Literacy index</b>	<b>Schooling index</b>	<b>Educational attainment index</b>	<b>Real GGP per capita (PPP\$)</b>	<b>Adjusted real GGP per capita (PPP\$)</b>	<b>HDI</b>
RSA		62,77	82,16	6,86	0,822	0,457	0,700	3 885	3 885	0,677
Africans	4	60,30	76,64	5,53	0,766	0,368	0,634	1 665	1 665	0,500
Coloureds	3	66,46	91,06	6,94	0,911	0,463	0,761	3 020	3 020	0,663
Indians	2	68,89	95,48	8,78	0,955	0,585	0,832	5 524	5 160	0,836
Whites	1	73,11	99,52	11,67	0,955	0,778	0,923	16 722	5 339	0,901

**Table 5 - Human Development Index by province: 1991**

Provinces	HDI rank	Life expectancy at birth (years)	Adult literacy rate (%)	Mean years of schooling	Literacy index	Schooling index	Educational attainment index	Real GGP per capita (PPP\$)	Adjusted real GGP per capita (PPP\$)	HDI
RSA		62,77	82,16	6,86	0,822	0,457	0,700	3 885	3 885	0,677
Eastern Cape	8	60,65	72,34	6,65	0,723	0,443	0,630	1 764	1 764	0,507
Free State	5	61,90	84,42	6,50	0,844	0,433	0,707	3 605	3 605	0,657
Gauteng	2	66,00	92,91	8,59	0,929	0,573	0,810	8 558	5 237	0,818
Kwazulu Natal	6	61,55	84,26	6,48	0,843	0,432	0,706	2 773	2 773	0,602
Mpumalanga	4	62,38	75,48	5,34	0,755	0,356	0,622	4 593	4 593	0,694
Northern Cape	3	62,69	79,83	6,25	0,798	0,416	0,671	4 365	4 365	0,698
Northern Province	9	62,67	73,64	4,61	0,736	0,307	0,593	1 192	1 192	0,470
North West	7	59,66	69,46	5,75	0,695	0,383	0,591	2 617	2 617	0,543
Western Cape	1	67,70	94,57	8,45	0,946	0,564	0,818	6 002	5 179	0,826

**Table 6 - Human Development Index by type of region: 1991**

<b>Population group</b>	<b>HDI rank</b>	<b>Life expectancy at birth (years)</b>	<b>Adult literacy rate (%)</b>	<b>Mean years of schooling</b>	<b>Literacy index</b>	<b>Schooling index</b>	<b>Educational attainment index</b>	<b>Real GGP per capita (PPP\$)</b>	<b>Adjusted real GGP per capita (PPP\$)</b>	<b>HDI</b>
RSA		62,77	82,16	6,86	0,822	0,457	0,700	3 885	3 885	0,677
Urban		65,02	92,17	8,45	0,922	0,563	0,802	6 297	5 189	0,807
Rural		60,50	69,31	4,62	0,693	0,308	0,565	1 460	1 460	0,466

**Table 7 -Human Development Index by population group: 1980**

<b>Population group</b>	<b>HDI rank</b>	<b>Life expectancy at birth (years)</b>	<b>Adult literacy rate (%)</b>	<b>Mean years of schooling</b>	<b>Literacy index</b>	<b>Schooling index</b>	<b>Educational attainment index</b>	<b>Real GGP per capita (PPP\$)</b>	<b>Adjusted real GGP per capita (PPP\$)</b>	<b>HDI</b>
RSA		58,77	74,43	5,43	0,744	0,362	0,617	2 782	2 782	0,557
Africans	4	56,23	66,03	3,63	0,660	0,242	0,521	938	938	0,394
Coloureds	3	58,51	84,05	5,72	0,841	0,381	0,687	2 040	2 040	0,532
Indians	2	65,35	91,64	6,98	0,916	0,465	0,766	3 274	2 960	0,655
Whites	1	70,43	98,90	10,96	0,989	0,731	0,903	11 781	3 115	0,739

**Table 8 - Human Development Index by province: 1980**

Provinces	HDI rank	Life expectancy at birth (years)	Adult literacy rate (%)	Mean years of schooling	Literacy index	Schooling index	Educational attainment index	Real GGP per capita (PPP\$)	Adjusted real GGP per capita (PPP\$)	HDI
RSA		58,77	74,43	5,43	0,744	0,362	0,617	2 782	2 782	0,557
Eastern Cape	8	54,41	71,19	4,63	0,712	0,308	0,577	1 146	1 146	0,416
Free State	3	56,99	74,30	5,13	0,743	0,342	0,609	3 349	2 963	0,556
Gauteng	2	61,70	87,61	7,35	0,876	0,490	0,747	6 213	3 052	0,634
Kwazulu Natal	6	59,93	71,09	4,91	0,711	0,327	0,583	1 819	1 819	0,491
Mpumalanga	5	57,66	61,35	3,92	0,614	0,261	0,496	2 819	2 819	0,513
Northern Cape	4	56,74	72,51	5,42	0,725	0,362	0,604	2 837	2 837	0,545
Northern Province	9	60,06	55,96	2,82	0,560	0,188	0,436	619	619	0,367
North West	7	56,30	67,31	4,35	0,673	0,290	0,545	2 198	2 198	0,483
Western Cape	1	62,76	89,97	7,63	0,900	0,509	0,769	3 925	2 985	0,643

**Table 9 - Human Development Index by type of region: 1980**

Population group	HDI rank	Life expectancy at birth (years)	Adult literacy rate (%)	Mean years of schooling	Literacy index	Schooling index	Educational attainment index	Real GGP per capita (PPP\$)	Adjusted real GGP per capita (PPP\$)	HDI
RSA		58,77	74,43	5,43	0,744	0,362	0,617	2 782	2 782	0,557
Urban		62,29	89,20	7,43	0,892	0,495	0,760	4 825	3 009	0,639
Rural		55,81	58,49	3,11	0,585	0,208	0,459	1 064	1 064	0,379



**Table 10 - Gender-disparity adjusted Human Development Index for the RSA: 1980, 1991, 1996**

<b>HDI and Indicator</b>	<b>1980</b>	<b>1991</b>	<b>1996</b>
HDI	0,557	0,677	0,688
Life expectancy: Male	55,17	59,99	52,11
Life expectancy: Female	62,53	65,50	61,60
Educational attainment: Male	0,633	0,724	0,86
Educational attainment: Female	0,601	0,678	0,85
Adjusted real income per capita (PPP\$): Male	3 001	5 175	8 488
Adjusted real income per capita (PPP\$): Female	1 097	1 989	3 534
Female as % of male			
Life expectancy	113,34	109,18	N/A
Educational attainment	94,94	93,65	N/A
Adjusted real income per capita PPP\$	36,56	38,44	N/A
Average female/male ratio for three HDI components (%)	81,61	80,42	N/A
Equally distributed life expectancy index	N/A	N/A	0,529
Equally distributed educational index	N/A	N/A	0,854
Equally distributed income index	N/A	N/A	0,613
Gender-disparity adjusted HDI	0,455	0,544	0,666
Difference (%) between HDI and gender-disparity adjusted HDI	18,31	19,65	3,2

**Table 11 - Comparison of the Human Development Index for the RSA with selected countries**

Provinces	HDI 1980	HDI 1985	HDI 1990	HDI 1991	HDI 1996	HDI 1997	HDI 1998
<b>High human development</b>							
Canada	0,879	0,901	0,924	N/A	N/A	0,932	0,935
Poland	0,774	0,778	0,780	N/A	N/A	0,802	0,814
United Arab Emirates	0,767	0,780	0,803	N/A	N/A	0,812	0,810
<b>Medium human development</b>							
Gauteng	0,634	N/A	N/A	0,818	0,771	N/A	N/A
Western Cape	0,643	N/A	N/A	0,826	0,762	N/A	N/A
Sri Lanka	0,641	0,671	0,694	N/A	N/A	0,721	0,733
RSA (Stats SA)	0,557	N/A	N/A	0,677	0,688	N/A	N/A
RSA (UNDP)	0,652	0,671	0,700	N/A	N/A	0,695	0,697
Northern Cape	0,545	N/A	N/A	0,698	0,679	N/A	N/A
Free State	0,556	N/A	N/A	0,657	0,671	N/A	N/A
Kwazulu Natal	0,491	N/A	N/A	0,602	0,658	N/A	N/A
Mpumalanga	0,513	N/A	N/A	0,694	0,657	N/A	N/A
China	0,554	0,588	0,624	N/A	N/A	0,701	0,706
Indonesia	0,533	0,586	0,630	N/A	N/A	0,681	0,670
Algeria	0,556	0,605	0,637	N/A	N/A	0,665	0,683
Swaziland	0,528	0,556	0,605	N/A	N/A	0,644	0,655

Eastern Cape	0,416	N/A	N/A	0,507	0,643	N/A	N/A
Namibia	0,604	0,620	0,644	N/A	N/A	0,638	0,632
Northern Province	0,367	N/A	N/A	0,470	0,629	N/A	N/A
Botswana	0,565	0,624	0,670	N/A	N/A	0,609	0,593
North West	0,483	N/A	N/A	0,543	0,608	N/A	N/A
<b>Low human development</b>							
Mozambique	0,302	0,294	0,334	N/A	N/A	0,341	0,341
Niger	0,269	0,267	0,283	N/A	N/A	0,283	0,293

## **ADDITIONAL INFORMATION**

### **Explanatory Notes**

**Introduction**            **1**    In developing the Human Development Index (HDI) the United Nations Development Programme (UNDP) followed the philosophy that the goal of development was to ensure that individuals live long, informed and comfortable lives. The HDI was developed (using readily available information) to determine how nations compare when these factors are taken into consideration.

The HDI provides an alternative method to measure the relative socio-economic development of countries. It enables researchers and governments to measure progress over time and to determine priorities for economic policy. Previously the national development of a country was usually measured only by means of economic performance in terms of the annual growth rate in the real gross domestic product (GDP) per capita. This measure which is based on monetary values, is not a complete indicator of socio-economic development across the whole spectrum of the human society. It should however be remembered that no single indicator can capture and reflect entire human development, and the HDI should therefore be evaluated in the light of other related socio-economic indicators.

The HDI is best seen as a measure of peoples' ability to live a long and healthy life, to communicate, to participate in the community and to have sufficient means to be able to afford a decent living.

## Human Development Index

- 2 The HDI basically consists of three key components, namely longevity, educational attainment and standard of living. Each component has different indicators and interpretations. For the inclusion of the above-mentioned indicators in the HDI, each is normalised to a scale between 0 and 1 where 0 corresponds with the minimum value of the relevant indicator and the value 1 with the maximum. Equal weights are allocated to the three components and the HDI therefore represents the arithmetic average of the normalised values of the three components.

To construct the index fixed minimum and maximum values have been established for each of these indicators. For each indicator of the HDI individual indices can be computed according to the following general formula:

$$\text{Index} = \frac{\text{Actual value} - \text{minimum value}}{\text{Maximum value} - \text{minimum value}}$$

The use of fixed minimum and maximum values is in contrast with previous years (before 1994) where such values were changed regularly. So, for example, the minimum value for any specific year was taken as the level of the indicator for that country with the worst performance, while the maximum value was based on the level of the country, which had the best performance. The use of this method, that is where the minimum and maximum were changed annually, made meaningful comparisons between countries over time virtually impossible. The most important advantage in using fixed minimum and maximum values lie in the fact that more useful and meaningful comparisons can be made between countries and over time.

The underlying principle of the HDI is that it indicates a country's relative position on an HDI scale between 0 and 1 (as compared with the rest of the world). Countries with an HDI below 0,5 are considered to have a low level of human development, those between 0,5 and 0,8 (0,5 up to just less than 0,8) a medium level and those of 0,8 and above as a high level of human development.



With regard to the methodology modification, as indicated in the 1994 report, fixed minimum and maximum values are now used for the basic indicators. Regarding knowledge, the recommendation is that the minimum literacy rate be taken as 0% and the maximum as 100%, while the minimum value for the average years of schooling is 0 and the maximum 15. As far as longevity is concerned, the suggested minimum life expectancy has been set at 25 years and the maximum at 85 years. Concerning income, the minimum level is \$200 (PPP\$) and the maximum level is \$40 000 (PPP\$). In view of the effect of diminishing returns, income above a poverty line is progressively reduced by means of the Atkinson formula for the utility of income.

The UNDP's Human Development Report – 1999, has suggested a changed methodology. A combination of adult literacy (two-thirds weight) and the combined gross primary, secondary and tertiary enrolment ratio (one-third weight) now measure the educational attainment. In addition, the construction of the income index has been changed. In previous years the practice was to discount income above the threshold level of the world average income. The main problem of this formula is that it discounts the income above the threshold level very heavily, penalising the countries in which income exceeds the threshold level. The treatment of income has been refined to discount all income (not just above a certain level) and does not discount as severely as previously.

The above-mentioned changes make strict comparisons with previous HDI-estimates very difficult.

- Treatment of income**
- 7 Income enters into the HDI as a surrogate for all the dimensions of human development not reflected in a long and healthy life and in knowledge --in a nutshell, it is a proxy for a decent standard of living. The basic approach in the treatment of income has been driven by the fact that achieving a respectable level of human development does not require unlimited income. To reflect this, income has always been discounted in calculating the HDI. The issue is, how should it be discounted, and at what level?
- In previous years the practice was to discount income above the threshold level of the world average income, using the following formula:
- $$W(y) = y^* \text{ for } 0 < y < y^*$$
- $$= y^* + 2[(y - y^*)^{1/2}] \text{ for } y < 2y^*$$
- $$= y^* + 2(y^* \frac{1}{2}) + 3[(y - 2y^*)$$
- History of the statistical release**
- 8 Stats SA calculated the HDI for the RSA 1980 and 1991 in statistical release P0015 published on 8 May 1995. The methodology, as described in the United Nations Development Program's (UNDP) Human Development Report – 1994, was used.
- Related publications**
- 9 Users may also wish to refer to the following publications available from Stats SA:
- Statistical release P0015 Human Development Index (HDI) for the RSA: 1980 and 1991
- Unpublished statistics**
- 10 In some cases Stats SA can also make available information which is not published. This information can be made available in one or more of the following ways: computer printout or diskette. Generally unpublished information is charged for.



**Symbols and abbreviations**

<b>11</b>	HDI	Human Development Index
	Stats SA	Statistics South Africa
	RSA	Republic of South Africa
	UNDP	United Nations Development Program
	UN	United Nations
	GDP	Gross Domestic Product
	N/A	Not available
	WC	Western Cape
	EC	Eastern Cape
	NC	Northern Cape
	FS	Free State
	KZ	Kwazulu Natal
	NW	North West
	GT	Gauteng
	MP	Mpumalanga
	NP	Northern Province

## Glossary

<b>Adult literacy</b>	The percentage of people aged 15 and above who can, with understanding, both read and write a short, simple statement on their everyday life.
<b>Adult literacy rate</b>	<p>Adult literacy rate for the 1980 and 1991 HDI is defined as persons who are 15 years and older who can read, write and speak.</p> <p>Adult literacy rate as recommended by the United Nations (UN) in 1999 is the percentage of people aged 15 and above who can, with understanding, both read and write a short, simple statement on their everyday life.</p> <p>Adult literacy rate for the 1996 HDI is defined as the cohort of all persons with grade 7 and higher calculated as a percentage of all persons 15 years and older.</p>
<b>Adult literacy index</b>	<p>Adult literacy index is defined as:</p> $\frac{\text{Actual value} - \text{min value (0)}}{\text{Max value (100)} - \text{min value (0)}}$
<b>Average years of schooling</b>	The average number of years of study for persons who are 25 years and older.
<b>Combined gross school enrolment ratio</b>	The number of students enrolled in a level of education, regardless of age, as a percentage of the population of official school age for that level. The combined gross primary, secondary and tertiary enrolment ratio refers to the number of students at all these levels as a percentage of the population of official school age for these levels.
<b>Combined gross enrolment index</b>	<p>The combined gross enrolment index is defined as:</p> $\frac{\text{Actual value} - \text{min value (0)}}{\text{Max value (100)} - \text{min value (0)}}$

<b>Equally distributed life expectancy index</b>	The equally distributed life expectancy index is the life expectancy index adjusted in accordance with the disparity in achievement between women and men.
<b>Equally distributed educational index</b>	The equally distributed educational index is the educational index adjusted in accordance with the disparity in achievement between women and men.
<b>Equally distributed income index</b>	The equally distributed income index is the income index adjusted in accordance with the disparity in achievement between women and men.

**Gender-disparity  
adjusted HDI ( Gender-  
disparity index-GDI )**

In calculating the GDI for 1980 and 1991 an average ratio of female to male life expectancy, educational attainment and GDP per capita (PPP US \$ ) is calculated. The GDI is a simple average of the three ratios multiplied by the HDI.

In calculating the GDI for 1996 the GDI adjusts the average achievement in life expectancy, educational attainment and income in accordance with the disparity in achievement between women and men.

The GDI adjusts the maximum and minimum values for life expectancy to account for the fact that women tend to live longer than men. For women the maximum value is 87,5 years and the minimum value 27,5 : for men the corresponding values are 82,5 and 22,5 years.

Calculating the index for income the values of per capita GDP (PPP US\$) for men and women are calculated from the female share ( $s_f$ ) and male share ( $s_m$ ) of earned income. These shares in turn, are estimated from the ratio of the female wage ( $w_f$ ) to the male wage ( $w_m$ ) and the percentage shares of women ( $ea_f$ ) and men ( $ea_m$ ) in the economically active population.

Female share of the wage bill:

$$s_f = \frac{(w_f/w_m)*ea_f}{[(w_f/w_m)*ea_f]+ea_m}$$

It is further assumed that the total GDP (PPP US\$) is also divided between women and men according to  $s_f$ , the total GDP (PPP US\$) going to women is given by ( $s_f*Y$ ) and the total GDP (PPP US\$) to men by [ $Y-(s_f*Y)$ ].

Per capita GDP (PPP US\$) of women is  $y_f=s_f*Y/N_f$  where  $N_f$  is the total female population.

Per capita GDP (PPP US\$) of men is  $y_m=[Y-(s_f*Y)]/N_m$  where  $N_m$  is the total male population.

The adjusted income for women,  $W(y_f)$ , is given by:

$$W(y_f) = \frac{\log y_f - \log y_{\min}}$$

The equally distributed income index is given by:

$(P_f/W(y_f)+P_m/W(y_m))$  where  $P_f$  and  $P_m$  is respectively the male and female population share.

The equally distributed indices for life expectancy, educational attainment and income are added together with equal weight to derive the final GDI value.

**Income index**

The income index for is given by :the 1980 and 1991 HDI is defined as:

$$\frac{W(\text{actual value}) = y + 2(\text{actual value}^{1/2}) + \dots + 6(\text{actual value}^{1/6}) + 7[(40\ 000 - 6(\text{actual value})^{1/7})]}{\text{Max value (5\ 385) minus min value (200)}}$$

The income index for the 1996 HDI (as recommended by the 1999 UNDP Human Development Report) is defines as:

$$\frac{\text{Log (actual value) minus log (min value = 100)}}{\text{Log (max value = 40\ 000) minus log (min value = 100)}}$$

**Life expectancy at birth**

The number of years a new-born infant would live if prevailing patterns of mortality at the time of birth were to stay the same throughout the child's life.

**Life expectancy index:**

Life expectancy index is defined as:

$$\frac{\text{Actual value of life expectancy at birth minus min value (25)}}{\text{Max value (85) minus min value (25)}}$$

**Real GDP per capita**

Real gross domestic product (GDP) per capita for the 1980 and 1991 HDI is converted to purchase power parity (PPP\$) for the purpose of international comparability. In view of the effect of diminishing returns, income above a poverty line are progressively reduced by means of the Atkinson formula for the utility of income.

Real GDP per capita for the 1996 HDI (as recommended by the 1999 UNDP Human Development Report) is converted to the so-called purchase power parity (PPP\$) for the purpose of international comparability.

**Schooling index**

The schooling index is defined as:

$$\frac{\text{Actual value} - \text{min value (0)}}{\text{Max value (15)} - \text{min value (0)}}$$

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